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Breeding of the Indian Meal Moth in Extracting Combs

By W. E. Dunham, Ohio State University

DURING the past winter the extracting combs from the college apiary were stored in a room where the temperature was high and quite constant—i. e., about 78° F. Fumigation for the control of the waxmoth was carried out at frequent intervals. However, since the hive bodies containing the stored combs

Fig I.
Adult Indian Meal Moth.

were not stacked tight together, the carbon bisulphide gas diffused rather rapidly from the hive bodies, so the treatment was not entirely effective and the waxmoth continued to breed to some extent, though not enough to cause any material damage to the combs.



Fig. III.
Larva of Indian Meal Moth.

Last December the Indian meal moth was first noticed breeding on the pollen in the combs, and as time went on the infestation gradually increased to a certain point, even though fumigation was carried on for the control of the waxmoth.

The Indian meal moth is at least one-third as large as the common waxmoth and is easily recognized by the markings of the forewings (Fig. 1). A little less than half of the basal portion of the forewing is a metallic cream color, while the remaining outer portion is of a dark copperish color, with black scales which form irregular cross bands.

In the cases which were observed by the writer, the female Indian meal moth deposited her white, oval, minute eggs singly or in groups on the edges and sides of the cells containing pollen or on the pollen within the cells. The yellowish-white larva is very small when first hatched from the egg, but when fully grown it attains a length of 18-20 mm. (Fig. 3). The larva seems to feed on the pollen entirely, although it may feed to some extent on the honey left on the cells of the extracted combs. This would not be surprising, as the Indian meal moth is known to breed in candy. At the end of the larval period the larva spins its cocoon. Sometimes the cocoon is spun in the cell in which the larva was feeding, or the larva may migrate to some other cell in the near vicinity.

Professor William B. Herms, parasitology laboratory of the University of California, has carried out life history studies of this insect breeding in candy. He says: "Egg deposition took place at night, and the minute, glistening, whitish eggs, not over 12-15 per female for the cases observed, were oviposited in haphazard fashion directly on the candy near the under side of each piece. The incubation period was about fortyeight hours. The tiny larvæ soon

ate small pits in the candy and gradually became hidden within the cavern. It became evident that the active feeding period probably requires not less than four weeks.

"Accurate observations on the original larvæ show that the fully grown individuals leave the candy and crawl into corners or crevices



Fig II. Adult Wax Moth.

when they pass a prepupal period of from nine to twelve days, during which time they spin a crude web in which pupation takes place. The pupal period requires from ten to fourteen days under the temperature

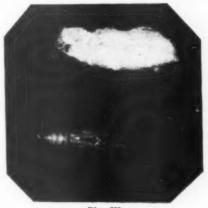


Fig. IV.
Cocoon and Pupa of Indian Meal Moth.

ranging from 71 to 78.8° F. On the other hand, the pupal period requires from twenty-four to twenty-eight days under room temperature varying from 61 to 66.2° F. The life history of the Indian meal moth (Plodia interpunctella) requires about forty days for its completion in a maintained temperature of from 73.4° to 78.8° F."

The question which will come to the mind of the beekeeper is just what economic loss may result if the Indian meal moth breeds in extracting combs which contain pollen. Concerning the economic importance to the beekeeper, the Indian meal moth will undoubtedly have very little significance except in those cases where a very heavy infestation may have occurred. In such cases the cleaning out of the frass deposited during the larval stage and the cocoons left in the cells from the pupal stage might be a heavy burden on the This insect, unlike the colonies. waxmoth, does not cause any damage to the comb itself.

Rheumatism and Bee Stings

See the March number of American Bee Journal, page 125. The writer has had his share of rheumatism and many times has he tried the doctors' remedies, with very little benefit and many times no benefit. About a third of a century ago, I was greatly troubled with rheumatism in my wrists and shoulders. The pain was very severe and, being a dairyman, I found it necessary to go out to the beehives and bump my wrists against the entrance of the hives to get from ten to twenty-five stings so I could get relieved of the lameness in order to help do the milking. For several years it was necessary to follow the practice each spring for a few weeks. Now I am 78, no rheumatism. I keep bees, do no milking, got forty-four hundred pounds extracted honey last year, five tons three years ago. This was a very poor year for out-of-door wintering. No flights and short of stores; cellar wintering good where there was plenty of stores and put bees in the cellar before the rain and ice came. Bee stings were a remedy to help me. N. A. Kluck, Illinois.

(This is a good testimonial for the bees. But not everybody gets relief in the same way. Personally, I had rheumatism, or rather sciatica, for four years in succession. When I made a visit in Europe, in 1913, a noted physician, who was also a beekeeper, advised me to quit eating meat. I did and I have never had sciatica since. But bee stings were of no help to me. So it is very plain that not everyone who suffers from rheumatism can be helped by the stings.—Editor.)

Eugene Holloway, Oklahoma's Keeper of the Bees

By Bryan Smith



EUGENE HOLLOWAY, 29, beekeeper, writer, and editor, who resides one mile northeast of Marietta, Love county, Oklahoma, has never walked a step or attended school in his life, yet he has made a greater success as an apiculturist and has written more real instructive articles on the life and management of honeybees than any other Oklahoman of his age.

Inward curvature of the spine left him an invalid at six weeks of age. His affliction prevented him from attending school along with his older and younger brothers and sisters, but his mother taught him to read, write, and do simple problems in arithmetic. After this he purchased books for home study, and, after years of persistent effort, secured a good practical education.

At an early age Eugene showed a preference for books pertaining to nature, and spent much time reading them and comparing articles by different authors.

When he was ten years old he would patiently sit for hours and watch the honeybees come and go from his mother's flowers. He would notice each new bud that appeared on the rose bushes and calculate just when it would open. He would watch the birds as they came and went building their nests and feeding their young. While other boys ran away

to boisterous play, Eugene was contented with his own quiet thoughts and study.

When he was fifteen years old he purchased a swarm of wild black honeybees for a dollar, and gave two dollars and fifty cents for a frame hive to put them in. Hour after hour, on day after day, he would sit by his beehive and study the bees at their work. Each different little peculiar movement that the bees made suggested a new topic of study.

After purchasing and studying a number of textbooks on the life and habits of honeybees, and reading all the leading bee journals, he became familiar with the practical side of

beekeeping.

Eugene's friends looked upon his hive of bees as a plaything for him to while away the lonely hours with, but he was not lonely when he was with his bees. Little did anyone dream that this one hive of wild black bees would lead to Eugene's name being known from coast to coast as a beekeeper, writer, and editor.

Desiring a more gentle strain of bees, he introduced an Italian queen into his colony of wild black bees and in a few weeks the entire hive was pure Italians. Finding this a cheap method of obtaining pure golden Italian bees, he from time to time purchased colonies of wild black bees, from farmers who had been unsuccessful beekeepers, and changed them to pure Italians by this method.

This humble start was made back in 1915, but by 1918 the apiary had grown to such proportions that it was impossible for Eugene to wheel himself from one hive to another and do the work essential to the welfare of the bees, so he took his younger brother, Jessey Holloway, in with him as a partner in the apicultural profession. Eugene remained manager of the apiary, while Jessey did the heavy manual labor, such as his invalid brother could not do.

In 1919, just four years after he started beekeeping, Eugene wrot? his first article for the magazines on apiculture. The publishing of this article and the nice check he received for it, gave him courage to write another, which was also accepted. Since that time he has had articles published in all the leading bee magazines and farm papers of the

Eugene soon realized that his father's little farm was a poor location for an apiary, as there were few honey-producing wild flowers upon it. To remedy this condition, a large

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tract of pasture land was seeded to sweet clover. The following year his bees repaid him for all his efforts in sowing the clover, with large stores of honey. While other beekeepers of the vicinity laughed at the idea of planting flowering plants for bees, Eugene continued to sow sweet clover on his father's little prairie farm.

After finding sweet clover not only an excellent honey-producing plant, but a fine hay crop and a wonderful soil builder, Eugene began inducing nearby neighbors to also sow clover. In this way he soon had a large clover range for his bees to work on.

Up until 1923 the city of Marietta had consumed all the honey he could produce, but the clover increased the honeyflow in the Holloway apiary to the extent that Eugene had to devote a portion of his time to advertising his honey in other cities.

After reading every book and article he could obtain on different methods of selling honey, Eugene began a long series of experiments. First he studied packs and packing methods, and sent out a number of different containers to housewives, retail grocery men and wholesale men, then patiently awaited their results. These experimental packs consisted of large, square cans of honey, gallon and half-gallon pails, glass fruit jars, and the special cylindrical honey jar.

A close check of the results of the experimental packs has proven to Eugene that a long cylindrical glass jar of extracted honey with a neat cut of chunk comb honey in it sells best on most markets. He also finds it more profitable to sell to the retail grocery man than to sell to the wholesaler or direct to the consumer.

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When he had learned what packs sold the best on the different markets, he had neat labels printed for each different sized honey container, and no unlabeled honey leaves his apiaries.

In 1924 Eugene began queenrearing for the market as a sideline. When he had reared quite a few he began advertising in farm papers and bee magazines that "he would guarantee his queens to arrive safely anywhere in the United States, to be pure, mated, free from disease, and to give one full year's service, or to replace them free of all cost." These advertisements brought a deluge of orders, and soon queen-rearing became one of the leading industries instead of a sideline.

Besides queens, he sold numbers of package bees, and complete colonies in the hives. Besides his home apiary of fifty colonies, he has an outapiary of twenty hive. Eugene mentions with pride that during his thirteen years of beekeeping he has never had a case of any kind of bee disease among his bees.

With a hope of making Love county, Oklahoma, a land of milk and honey, Eugene began advocating that all the farmers of the county sow sweet clover, for hay and pasture, in 1926. He advertised the good qualities of sweet clover among the farmers of the county and made arrangements to sell them seed at from one-half to one-third what dealers and seed men were asking for seed that would stand the same Government test that his did.

During the fall of 1927 and the spring of 1928 he sold forty thousand pounds of clover seed to farmers over five different states, and sold more clover seed in Love county than all the other seed men combined. His clover seed is now one of his industries, and offers a promising future in this county.

Eugene's bees won first prize at the Muskogee State Fair at Muskogee, Oklahoma, and first grand champion at the Tulsa State Fair at Tulsa, Oklahoma, in 1927. They are being exhibited at the Oklahoma State Fair at this writing (1928).

In 1928 Eugene had a neatly arranged, sanitary honey house built near his home apiary. This house is well equipped with a modern honey extractor and a sanitary honey tank and other beekeeper's equipment. All windows and doors are screened to exclude stray bees and filthy flies.

About ten feet south of the honey house is Eugene's office and seed house, where the seed samples are kept, and small shipments are sometimes temporarily stored. In the office end of this building he has a filing cabinet, a number of letter files neatly arranged on a shelf, and a long shelf of reference books on such subjects as interested him. One of his office files is devoted to newspaper clippings only. In this file he stores away all the good articles he reads in the papers and magazines pertaining to apiculture. On his desk, near a south window, is his typewriter, where all his writing is done.

The "Holloway Industries" (as Eugene prefers to call them) are honey, queens, package bees, sweet clover seed, and bee supplies. Honest advertising and square dealing have made Eugene's customers his friends, and his friends are his boosters. When he sells a farmer sweet clover seed one year, he will more than likely sell him a hive or two of bees the next, and later he will sell him bee supplies or some queens. Thus one order advertises for another and the Holloway Industries continue to thrive.

Eugene has completed a course in English with the Southeastern State Teachers' College at Durant, Oklahoma, by correspondence, and is now planning to take a correspondence (Concluded on Page 333)

INTERESTING PERSONALITIES

C. L. SAMS



There is an old adage to the effect that you may live in the wilderness and yet the world will make a path to your door if you make a better mouse trap or preach a better sermon than your neighbors. C. L. Sams did not make mouse traps or preach sermons that attracted the world to his mountain home, but he did know bees. Back in the days when the Government was looking for leaders to carry the story of better beekeeping to the farms of America, Sams was selected because he was familiar with North Carolina conditions and was in advance of his neighbors in the care of his bees.

The task assigned him was to change beekeeping in North Carolina from a box-hive, log-gum sideline to a commercial specialty. It has been a big job, but Sams has made a good start at it and one now finds largescale commercial honey producers in various parts of the state who credit their start to the help given by C. L. Sams as extension specialist. Not content to talk with folks who were interested, he took off his coat, rolled up his sleeves and pitched in to help transfer the bees, hive the swarms, treat disease, or whatever happened to need doing at the particular moment. Sams believes that the easiest way to learn how to do a job is to see it done, and his success is largely due to the fact that he has literally shown the beginners and novices how to meet their problems with bees.



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The Tariff

Among the various measures of proposed farm relief among the various measures of proposed larm fener under consideration in Congress is a new tariff bill. It appears to be the plan to boost tariffs all along the line with the idea that if we keep foreigners out of our market we will assure prosperity to our people. The American Bee Journal believes that this is a very doubtful way to solve the difficulty. American agriculture is suffering because of a surplus of goods which remains unsold. High tariffs do not help dispose of a surplus What we need is beyond the needs of our own markets. newood the needs of our own markets. What we need is an additional outlet; if we discourage foreigners from trading with us, we can only expect them to do likewise. The city or country is most prosperous that has the widest trade. Finding foreign markets for honey has widest trade. Finding foreign markets for honey has helped more than anything else to relieve the distress in the honey market since the war-

If the new tariff bill is passed along the lines discussed in recent newspapers, it appears that agriculture will be in poor position to profit. We must buy manufactured goods in a highly protected market and sell our surplus in a world market. Others will attempt to shut us out in retaliation for our own high tariff. Tariffs are of temporary benefit to industries which produce a volume of porary benefit to industries which produce a volume of goods below the needs of the home market, but are useless to those whose production exceeds home demands. Agriculture is depressed by its surplus and the imperative need is an opportunity for finding outlets abroad or new uses at home. Everything which facilitates trade is helpful, while measures which stifle trade only make matters worse.

Important for Exporters of Honey

In another column of this magazine appears a statement of the arrangements made by the United States Department of Agriculture and the Bee Culture Laboratory for the proper inspection of any samples of honey sent in for export that they may be examined as to whether or not they will fulfill the requirement which will be necessary when the new regulations go into force for importations into Germany.

In other words, the Department of Agriculture is forearmed on the necessity for the issuing of proper grade certificates on honey which goes into Germany so that its standards of purity as to diastase, etc., may not be questioned by the German purchaser.

Our readers may not be aware of the fact that a number of shipments into Germany during the past season have been refused by the importers on the stipulation that this honey had been heated previous to shipment and lost considerable of its diastase content. upshot of such refusals being the necessary acceptance of a reduced price on such honey exported.

We urge our prospective exporters of honey to examine carefully the article mentioned and make plans to make use of the service offered by the Department of Agriculture.

In this connection it may not be amiss to criticize

somewhat the average beekeeper and the producer of honey on his tardiness in making use of the Bee Culture Laboratory at Washington and of the United States Department of Agriculture.

When we want additional service in such Departments, we most certainly cannot get it without proper requests and the more requests coming in to the Department, the better such a department is satisfied, because it gives it some grounds on which to ask for additional help from Congress or from the Department higher up.

We, personally, do not feel that full advantage has been taken of the Bureau of Crop Statistics, which puts out a crop and market report on honey by-monthly, or of the provision for proper warehousing of honey, nor of honey grading facilities.

We sincerely hope that the beekeepers interested in exporting of honey will immediately take advantage of the help offered in testing of all samples for purity and the issuance of grade certificates by the Department of Agriculture.

We undoubtedly have a very efficient Bee Culture Laboratory at Washington working under as efficient a Department of Agriculture and it only remains for us not only to compliment them on their work, but to show them that the work is needed and appreciated by frequent letters and by taking advantage of the opportunities offered.

Munro Succeeds Corkins as Editor of "Producer"

Because of ill health, Prof. C. L. Corkins, University of Wyoming, has resigned as Editor of The American Honey Producer, the publication put out by the American Honey Producers' League. Mr. Corkins has been granted a year's leave of absence by the University of Wyoming and is now in California. His many friends will be gled to low that he is a sixty of the control of the c will be glad to learn that he is rapidly regaining his health and will soon be working as hard as ever.

Mr. Corkins has worked faithfully and unselfishly for the upbuilding of the American Honey Producers' League and deserves the thanks of all who are interested in the welfare of this organization (and this should include every beekeeper) for the splendid work he has done. He is no less interested in the work of the League now, but he feels that in order to conserve his health he should reduce the amount of his outside activities.

We are fortunate to be able to announce that Prof. J. A. Munro, State Entomologist of North Dakota and head of the Department of Entomology and Beekeeping at the State Agricultural College of North Dakota, has consented to assume the Editorship of the Producer, in addition to his work as Secretary-Treasurer. Mr. Munro is already well known to beekeepers throughout the United States and Canada. His father is a well known beekeeper in Northern Ontario. He took his early training under Morley Pettit and Professor Millen at the Ontario Agricultural College at Guelph, and later studied with two of the best research men in beekeeping in this country, Dr. J. H. Merrill, formerly of the Kansas State Agricultural College, and Dr. E. F. Phillips of Cornell University. Professor Munro is making an outstanding success in his present position and is helping to build up bakota. Mr. Munro's duties are already very heavy but for the good of the cause he is willing to take on the additional work of editing The Producer. His acceptance of the cause he is willing to take on the additional work of editing The Producer. ance of this position assures us of a well edited publication.

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Producers of foodstuffs are just beginning to understand the threat which is offered by the chains which combine the buying for hundreds of stores to one central office. To well organized industries this condition may make possible large sales without the heavy traveling expenses necessary for salesmen to call upon hundreds of small merchants.

To the unorganized producers it may mean disaster. One large chain is generally credited with having broken the potato market last year to the near ruin of many small potato growers. It is stated that this firm sold potatoes in their many stores at prices far below what they had paid for them at wholesale, in order to make a leader. Coming at the time when the market was in an uncertain position, dealers were afraid to buy potatoes for fear of ruinous competition. This may easily happen in any line of the food producing industry which is not organized.

Chain stores are here to stay. They are a part of the new order in which we live. Because they are able to offer lower prices they will continue to attract trade. Already there are frequent reports to the effect that the chains are buying honey in carlots in the West where prices are low and selling it at retail in the East and Middle States at prices below what local beekeepers have formerly received at wholesale. The individual beekeeper can hardly hope to meet such a situation alone. The remedy lies in organizing selling associations to handle the output from each important producing locality.

What Is a Magazine Worth?

Now and then a letter comes to this office in which the writer states that a certain issue has been worth a year's subscription. A few such letters place the value of the Journal at a very high figure. Cases where ideas have resulted in savings or additional earnings of several hundred dollars have thus been brought to our attention.

It is doubtful whether any reader really appreciates the cash value of the ideas he gets from a magazine like the American Bee Journal. The man who knows most about the conditions of others in his own line of work is in the best position to make the most of his own opportunities. In most cases it would be impossible to estimate direct cash benefits from the suggestions received from a particular number, but it would be an indolent beekeeper who could not find more than a dollar's worth of useful practice in a year's issues. Even a trivial suggestion often results in the saving of a dollar or more every day during the rush of the honey harvest. The information contained in the crop and market page should be worth several times the cost of the magazine to any man with a few hundred pounds of honey to sell.

The information that costs the publishers several thousand dollars to secure, comes to you for only one dollar because the cost is divided among so many readers.

Sweet Clover

Sweet clover bids fair to revolutionize the entire beekeeping industry. Already it has made great changes, and the indications are that its influence will be even more marked in the future. Sweet clover has made beekeeping an important industry in the plains region where formerly bees were not worth the trouble to keep them. North Dakota, which was formerly the poorest beekeeping state, is now one of the best, all because of the coming of this plant. The same thing applies to much of the western prairie region of Canada.

Now we find it coming into favor with the farmers of southern and eastern regions. The writer has recently returned from a long trip through the Southeast and was surprised to find sweet clover extending its range into that area. In portions of South Carolina there are reports of extensive planting of sweet clover in rotation with such crops as cotton and corn. Already the effect is noticed on the yields of honey in such neighborhoods, and some seem to think that sweet clover honey will soon be important in that territory.

Since good sweet clover offers so much higher yields per colony than do most plants, the beekeeper in a good location can produce at less cost per pound than is otherwise possible. This puts him in a favorable position to realize a profit where his competitors in less favored situations are unable to do so. The man who gets one hundred pounds surplus per colony needs only half as many bees to produce as much honey as the man who gets only fifty pounds. Because of his smaller investment and reduced operating costs he clears more profit.

Queenlessness

Midsummer is a good time for queenlessness. A strong colony swarms. The young queen is born in due course of events. Then she goes out on her wedding flight and gets lost. Slowly and steadily the bees emerge from their cells. All are soon able to fly and the owner, looking on the outside, congratulates himself on the continued strength of that colony. But, in the summer, active bees are soon worn out and a colony which was overwhelmingly strong at the end of June, even after casting a swarm, becomes a weakling in August.

So the beekeeper had better not rely too much on past reputation of his good stocks. He should make sure that there is an active queen in each hive, when the first crop comes to an end. If there is any shortage of queens, before long, there will be laying-workers and a hopeless condition in hives that would otherwise have yielded another good crop and made ample preparations for winter.

Returning Swarms to the Colonies

First swarms cannot be always returned successfully to the hives from which they issued. But second swarms may be handled without trouble.

The idea is to get the swarm back, when the hive has settled its propensity to swarm. For this purpose, we hive the swarm in anything convenient and keep it 48 hours. At the end of that time we throw it back in front of its mother colony. The young queen invades the hive, seeks all the cells or young queens and destroys them. If we returned the swarm at once when it issued, the bees of the hive, being still inclined to the swarming instinct, would prevent her from doing this and another issue would be the result-

With the first swarm, the same thing may be done, but if the colony still has the swarming fever, it will only delay the swarming a few days longer.

Unusual Swarming

From all directions come statements of an unusual amount of swarming. Some beekeepers report that some colonies swarmed when they had plenty of room and very little honey. In our opinion this was due to inefficiency in the queens, probably because they had suffered from the winter and had their egg-laying qualities more or less weakened. Then, too, some very warm weather came, following cool, rainy days, when the bees were confined to their hives. The dissimilarity or contrast in the weather caused unusual conditions.

But on the whole, our beekeepers recognize that the important requirements are shade, ventilation, storing space for honey and arrangements to make the bees comfortable.

Nevada as a Bee State

The State Apiary Commission of Nevada has issued its biennial report for the years 1927-8 and it is a most interesting document. As we all know, the state of Nevada is especially a mining country. But beekeeping is beginning to assume interesting proportions in some parts of it. One county shows as many as 2,383 colonies of bees, but some counties show as low a number as ten colonies, while two counties are not listed at all. There appears to be a slight increase and the commission is encouraged by the prospect.

"Strong Colonies for the Harvest"

By Dr. J. H. Merrill

I WAS much interested in the editorial on page 225 on "Strong Colonies for the Harvest." It is very timely to call attention to the necessity of having colonies strong before the honeyflow begins.

In the history of beekeeping, practices have preceded theories. It has only been after we have adopted certain practices and found them to be advantageous that we study them to learn why they are so. I sometimes think that if we know why a thing is necessary, we are more apt to

do it.

It is truly pointed out in the editorial that if the honeyflow begins on June 10 the queen would have to reach her peak of egg-laying before May 5. The beekeeper who waits until May 4 to bring this about will find himself sadly out of luck. He should have attended to this condition during the preceding fall. If he had left his hives well provisioned with stores, with a large number of young bees, and given his hives protection, he would not find his queen "laying two or three eggs in a cell" and "a small number of bees crowding together on the frame trying to keep the brood warm."

The editorial further states that "usually the colonies begin to increase in numbers as soon as the early blossoms cause fresh nectar to be brought in." This is true.

But how can this brood rearing condition be explained? In spite of the poetical fancies which have been held about the queen and her egglaying abilities, she really is nothing but an egg-laying machine. the temperature in the hive reaches the proper mark, she deposits eggs. She may do this during the coldest parts of the year, if for some reason the activities of the bees cause the temperature within the hive to reach the egg-laying point. (American Bee Journal, Vol. 64, page 337-8.) When the early blossoms appear, the outside temperature is usually such that it is possible for the bees to maintain an egg-laying temperature over longer periods than earlier in the season, thus increasing the brood rearing.

The normal increase in the rate of egg-laying will of course only be found in those colonies which are well supplied with food. (American Bee Journal, Vol. 64, pages 508-9.) The digesting of food requires work, and this results in heat. If there is only enough food for a small number of bees to feed at one time, then the amount of heat which will be generated by the bees within the colony will necessarily be correspondingly small. However, in those colonies

which have been well supplied with stores, and are populous, a great many bees can feed and change honey into heat, with the result that a proper egg-laying temperature can be maintained over a longer period than in a poorly nourished colony.

If, due to poor weather, a larger number of bees than usual are confined to the hive, then there will be a greater amount of honey changed into heat, and a study of egg-laving records shows that during such times the queen increases her daily output of eggs. However, when pleasant weather again returns her rate of egg-laying will return to what it was before the bad weather began.

The question is discussed in the editorial of strengthening weak colonies by giving them frames of brood from other colonies. This may help in some cases, but in others it would be distinctly disadvantageous. There is such a thing as giving a colony more brood than it can care for unless the brood is accompanied by

extra bees as well.

The amount of brood reared in a colony of bees at any one time depends upon the number of workers available in that colony to perform the duties of brood rearing. (American Bee Journal, Vol. 65, pages 172-4.) If a prolific queen be placed in a strong colony a large amount of brood will be reared from her eggs. If she then be placed in a weaker colony the rate of brood rearing will decrease. If the queen from a weak colony be placed in a stronger colony, then her rate of brood rearing will increase. This is really only what we should expect, for we not only have a larger number of bees to bring about a proper egg-laying temperature by changing honey into heat, but we also will have a larger number of bees to act as nurses after these eggs have hatched.

It is true we must have strong colonies for the harvest, but we cannot wait until May 4 to get them ready for a June 10 honeyflow. We must begin in the fall of the preceding year by making our colonies strong enough in bees, supplying them with a goodly amount of stores and protecting them from weather changes, in order to conserve so far as possible the energy of the bees, thereby prolonging their lives.

Massachusetts.

(Without doubt our correspondent is right when he says that we must prepare in the fall for a good production of bees by supplying them with stores and protecting them from the weather changes, for if we do not bring our colonies safely through the winter we cannot expect them to

produce much honey. But that is not all, since we may buy bees by the pound in spring and have failure or success with them according to the care we take of them after receiving them. Charles Dadant had a French motto which filled the case very well: "Savoir ce qu'il faut faire et le faire a propos." Know what is to be done and do it in time.-Editor.)

Sanitary Veterinary Inspection

Decree relative to sanitary veterinary inspection of animals and animal products, Mexico City, March 20,

Emilio Portes Gil, Provisional President of the United States of Mexico, to the inhabitants, makes

That in use of the faculty which the Law of Plagues of November 15, 1924, concedes to the Executive, Chapter 3 of the Regulations of March 4, 1926, is added, relative to the sanitary veterinary inspection of animals and animal products of the origin of importation and exportation in the following form:

VIII—BEES

Queen Bees-The importation will be permitted only when they come in a transport box for queens accompanied by no more than 30 workers, and covered by a sanitary certificate from the competent authority of the country from which they proceed. When, for any motive, this last requirement is lacking, they must be remitted to the Directorate General of Agriculture for the corresponding examination.

Workers-The importation of bees will be permitted only when they come with or without queens, without honeycomb, and bearing as food certified candy.

The importation of nucleuses of bees is prohibited unless previous permission has been obtained from the Directorate General of Agricul-

Iowa Bee Men Active

Beekeepers of Jefferson county, Iowa, have organized a local association for the purpose of securing a thorough cleanup of disease in that region. They are among the first of the Iowa counties to endeavor to secure action under the new Iowa law permitting the use of county funds in bee disease eradication

Inspector Todd Hurt in California

Frank Todd, California's busy state inspector, met with a serious accident the last week of May. He is confined to his home but is rapidly improving and will soon be out

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Eugene Holloway, Oklahoma's Keeper of the Bees

(Concluded from Page 328) course in advertising in order to push his Industries to a greater success.

Eugene carefully keeps books on his Industries and often studies them to help him make his business more efficient. His books show that he shipped hundreds of queenbees to eight different states in 1927. They also show that during one or two lean years his bees didn't make enough honey to feed themselves, but that over the thirteen-year period they have averaged fifty pounds of honey per hive each year for their keeper.

Eugene is editor of the Oklahoma Beekeepers' Association department in the Beekeepers' Item, which is published at San Antonio, Texas. Besides examining numbers of manuscripts for this publication, he writes numbers of manuscripts for the magazines on apiculture.

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Thousands of people read his articles and glean practical information from every one of them, but only those who know him personally appreciate that the articles are written with one finger on his left hand and that he has to lock the shift every time he makes a capital letter, since he has no practical use of his right hand. Stroke after stroke, hour after hour, he toils with his typewriter to give to the world his experience among the honeybees.

Where able-bodied men have gone broke and declared that they never had a chance in life, Eugene has built his own Industries and made them pay. He asks nothing in the world, but pays his way everywhere in a business-like manner. He is always cheerful, thinking to make life more worth living, and always insists that this is a good old world after all.

New Edition Lubbock Work

Scientists and naturalists will be interested in learning that another edition of the work of Sir John Lubbock, "Ants, Bees and Wasps," is just off the press. It is the eighteenth and a newly revised edition. The experiments of Sir John Lubbock of 1874 and 1882 with ants, bees, and wasps are retained in their entirety in the revised work, the revision being in the nature of one hundred pages of notes at the end of the book containing new experiments and dis-coveries. The revision is by J. G. Myers.

The book contains 365 pages, sells at \$3.75 and is published by E. P. Dutton & Company of New York. It is a desirable addition to any scientific library, as well as being a highly interesting work for the layman.

One Way of Getting Publicity

By L. T. Floyd

O N the morning of April 8 we had O a big food exhibition on our hands in one of the large department stores in Winnipeg. Forty wholesalers of food products were given space.

Since we had been boosting strong for honey and had assembled interesting exhibits before, the management offered us space, which we promptly accepted. A home eco-nomics demonstrator who is enthusiastic regarding honey in cooking was secured and a honey recipe book prepared. Twelve thousand copies were printed and this was expected to be a number far in excess of our needs. Two packages of bees were ordered for use in observation hives. These arrived from Alabama on April 1 in splendid condition, scarcely a dead bee in spite of the fact that there was snow on the ground. They were hived in packed hives and were well settled down on the above date.

The show opened on the sixth of April and we passed 2,200 recipe books over the counter. This was the opening day and supposed to be the best day, as it had been well advertised. At the close of the day the manager informed me that if we got clear of 2,200 on this day, 1,200 a day would be all we would need for the early days of the week.

On Monday morning the thermometer showed ten points of frost and the wind blowing. The brakes on my new car, which I had out the night before, were frozen solid. There was nothing for me to do but take the bees over in the street car or call a taxi. I chose the former course. My son carried one hive down to the car and I the other. He then gave me the second hive and I carried them. As I passed through the door I heard him say something which I did not hear clearly. When I placed them on the car floor the cover came off, and when I arrived at the exhibition I showed the hive to a newspaper reporter and told him that the cover came off in the street car. His imagination supplied the following front page story:

"There were hectic doings in a crowded north-bound Park line street car this morning when a swarm of bees worked their way out of a hive being transported in the car and attempted to taste the exposed portions of several innocent passengers going to their daily tasks.

"For a few moments the car was in a mild state of pandemonium as the bees droned angrily about, amid waving arms and gesticulating hands endeavoring to make a kill. Not until a cool individual opened the rear exit door and by the force of gentle

persuasion and expert propelling shooed the bees into the open did calm again reign

"A pale-faced man, very much chagrined at the commotion, admitted he had been the owner of the little offenders. The bees, it appeared, were safely encased in a small hive which he had taken aboard the street car at the corner of Jubilee and Osborne streets. In the rush and bustle of the crowded car one of the hooks holding the hive together worked loose and the bees took the opportunity to stretch their wings. The man worked for the provincial Government and was on his way downtown to exhibit his burden at the T. Eaton Company food exhibition. The street car conductor threatens him with immediate expulsion from his car if another hive is ever produced on the tram."

The result was that we put out 2,500 recipe books next day, and before the end of the week the entire twelve thousand books were gone and an additional five thousand printed and nearly all distributed.

What was the truth of the story: When I took the hives in the car there were only five people on the car, a boy in the rear and four girls up front. About six bees escaped, and these the boy helped me to kill on the window. The conductor did not see us at all. An amusing thing in connection with the crowds that continually questioned us during the week were the statements from at least twenty children that their daddies were on that car. Either the children or their daddies were cheerful liars, for apart from the conductor I was the only daddy on that car, but it goes to show how easy it is to get publicity for the line we represent. Thousands stopped to see the bees and inquire about the story. The questions ran like this:

How many bees got out? Answer-I don't know; I was interested in the conductor.

What did he say? Answer-I didn't hear what he said, but I knew what he meant.

Do you have to walk to work now? Silence.

How many people got stung? Answer-I don't know. They were tame bees; I don't think they stung anyone.

There was no question of the results from the story. We nearly put the demonstrators for one of the large packing companies out of business, as their booth was across the aisle from us. Our exhibit with two observation hives in front and this story was a far greater attraction than anything they could put up.

A Glance Through the South

By Jess Dalton

Southern Bee Culture Field Station Items

Drs. Whitcomb and Oertel are sporting a new truck, equipped with a body that will carry several full colonies of bees, enabling them to transport colonies to distant fields, try out and check up on locations or plant yields. They have already established a few such outapiaries.

The college (L. S. U.) in cooperation with "Uncle's Beekeepers" is planning to establish a complete weather station, with all equipment for weather observation. This will make it possible to observe atmospheric effects on plant yields and bee flights.

These conditions, however, must have been "all wet" this season as the station apiary, with its scientific management, has suffered exactly like most of the apiaries in Louisiana. No honey has come in at all in that section and, strange as it may seem to the average beekeeper, Uncle Sam's bees seemed to feel the effect of it just like ours did.

All of Dr. Oertel's checking up on plants and Whitcomb's theories did not fill the combs with nectar any more than as though we had not checked or theorized.

The project for standardization of packages does not seem to be adversely affected by the honey failure. A few dozen questionnaires have been returned, and they are still slowly but gradually coming in The smaller shippers have answered more promptly. Possibly the heavier shippers will make returns more freely as the rush slackens and they get returns on the shipments. All of this shows, however, what can be done and what a great field is open for work when the Station will be more firmly established. The men in charge are getting familiar with all the problems and when funds are appropriated to work out the different projects, there will be a great ad-

To one unfamiliar, the mere details of getting the hang of the problems is almost unbelievable and the average man has no idea of the immense cost of labor and equipment. All this has to be covered the first year, to make a start.

Mississippi Conditions

This state was not so badly affected by the bad weather that hurt honey crops further west and the bees built up well. The shippers did an extra heavy package business but, the past month, has been in the same class with East Texas and Louisiana, rainy weather and adverse honey conditions.

Georgia

Floods hit Georgia early and did damage to roads, transportation, and so on, but at this time of year it did not seem to damage bees more than ordinarily and they have had better weather conditions than the states farther west, harvesting a good spring crop of honey.

Poor Bee Conditions General in Louisiana

In the years I have been in Louisiana, I have never seen such poor bee conditions in general over most of the state. Part of the time plants would bloom in continual cool, rainy weather and if any nectar was secreted, it was certainly not gathered.

The weather was not bad either. Here, as well as in other large sections, weather conditions would seem almost ideal but the bees would remain in the hives and not work the bloom at all.

Hamburg, Louisiana, was the one notable exception that came under my observation, and a good crop was on the hives when I was there, bees storing heavily, with prospects bright.

Such is the difference either in atmospheric or soil conditions within a few miles. Today, bees at St. Francisville are working fairly well on three species of thorny locust, on the sourwood in the hills and the pepper vine. Although they are working steadily, they are not showing any great gains in the hives.

To add to all this, another bad flood is creeping down the valley. When one thinks of the destruction of this water, year after year, the hagglings and the bickerings, it makes him wish for a Colonel Goethals to take it up and put the work through as he did the Panama Canal. Probably this is the only solution of it all.

East Texas Conditions

Conditions are about the same. Flowers have bloomed, rains have washed the nectar all out, and again they have bloomed, but nothing went into the hives. Floods have done damage, destroying houses, drowning people and live stock and, of course, washing away the bee yards on the low lands.

In some places where lots of extra equipment was stored on the hives, the losses have been aggravated and, owing to the damage to roads and bridges, salvage as well as general yard work is going forward slowly. Orders for package bees and queens have been spotted, some shippers having more business than they could handle and others practically nothing at all.

Charles W. Quinn—A Southern Appreciation

As a southern beekeeper, past President of the Louisiana State Association and one of the founders and present secretaries of the Southern States Beekeeping Conference, I wish to express an appreciation to the American Bee Journal for its acknowledgment to Mr. Quinn expressed on page 277 of the June issue, also other southern acknowledgments in this issue, particularly a picture and writeup of Mr. and Mrs. J. M. Cutts of Alabama and Mr. Brown of Florida.

The writer stood at Mr. Quinn's elbow at the Reconstruction Camp at New Orleans, on a chilly, cloudy day of November, in the fall of 1927, and witnessed him and Mr. Laidlaw handmate some half dozen virgins in this unnatural weather with poor shriveled-up drones. I also helped hand out the virgins and later checked up on the reports that came in from them. If I recall, about two-thirds of them laid eggs that hatched into worker brood.

I am not sold on hand fertilization of virgins. I learned enough watching Laidlaw struggle for hours and days at this work. But undoubtedly the impetus given to scientific breeding by the Quinn-Laidlaw method has been a stimulation to a deeper study of bee breeding than any one factor in years.

Another of Quinn's achievements that has not been mentioned is his device to measure the tongue length of bees. It is much more easily adapted and used than the mating device and has been thoroughly demonstrated to the writer's satisfaction. There is no unsurmountable difficulty to add length to the tongues of worker bees by breeding from queens whose bees show this reach in their workers. Whether the additional length is a decidedly valuable gain or not, I do not have the slightest idea.

Work along both these lines was primarily started by the work, writing, and experimentation of Mr. Quinn and Laidlaw. The great tragedy to all this is as exactly stated by Dr. Phillips in reviewing Dr. Watson's achievements in a back number of the American Bee Journal. The work takes up enormous amounts of time and expense. It will take time to show whether this is of value or of no value.

However, we are all certainly glad to see the credit of this work given to those who have patiently kept at it through doubts, scoffs, and ridicule. And the great awakening of interest in "Bee Genetics" has led up to a defin to be of th rect work

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definite short course in bee breeding to be scheduled at the next meeting of the Southern Conference as a direct result of these years of quiet work and experiments.

Manufactured Comb Honey

The "Flower Grower," Calcium, New York, contains the following enquiry:

A neighbor, a gentleman who has cared for bees for years, attended the Ontario, Canada, fair this year, and when he came home he had wonderful stories to tell about what he

saw.

One was that there was an immense exhibit of comb honey (acres of it), and as he gazed, opened his mouth in wonder, the man who was caring for the exhibit took down a section of comb honey and, "Look at that," which my neighbor did very carefully. The man said, "We manufacture that; no bee ever saw that honey." Now it looked like a section of honey made by bees and not by man.

I should have said, "If I do look green and have hay seed in my hair, I do not believe man can make a perfect section of honey." But you know a man believes anything told him, as woman has learned so well, so I write to ask of lovers of bees if they think honey can be made in sections by mere man.

Mrs. McKee, Ohio.

(The story told of "a comb honey exhibit (acres of it)" claimed to be manufactured by human beings, is not new, but it is nevertheless a fake. Comb cannot be manufactured. We know it because we manufacture the nearest thing to it, comb foundation, which is the base of the honeycomb and is furnished to the bees to be worked out into comb and filled by them.

If comb could be manufactured and filled with some syrup and sealed over as the bees seal it, it would not be difficult to detect its artificiality. The combs of the bees are, just like the leaves of the trees, all different, even when they are alike in appearance. Did you ever try to find two leaves exactly alike? There are many oak leaves or maple leaves, but you might set them side by side for days without finding two exactly alike. Variety in uniformity! It is the same with the combs of the bees. You might take a whole carload of comb honey and set those little sections side by side. You would never find two exactly alike; neither would you find two human beings exactly alike, in a whole nation.

But if the combs of honey were manufactured by human beings, they would be as exactly alike as cakes of soap.

Tell this to Mrs. McKee, Ohio.)

Purity of Honey Assured by United States Grade Certificates

Although since the passage of the United States Food and Drug Act in 1906 only 16 cases of misbranded or adulterated honey have been called to the attention of the Food, Drug, and Insecticide Administration of the United States Department of Agriculture, the stringent requirements on overheated honey in some foreign countries have made it desirable that all shipments of honey from this country be carefully examined as to quality. The Department of Agriculture, therefore, has made arrangements to include chemical tests of honey where official United States grade certificates are desired.

Chemical tests will be a part of the routine work at certain inspection points, such as San Francisco, Los Angeles, New York, and other centers where there is sufficient demand. The United States grading rules for honey specify that it must meet the requirements as given in the pure food law. Therefore, honey sold in containers bearing the United States grading stamp or certificate must be pure honey.

At the present time, says the department, chemical tests will be made by the Food Products Inspection Service only in connection with the issuance of grading certificates. This, however, does not apply to samples which are graded without charge merely for color, but to lots which are to have inspection certificates.

The use of the United States grade certificates, which will also carry a statement as to the purity of the honey based upon chemical tests, will be of great importance, says the department, particularly in facilitating exports of honey, as word has been received from abroad that all honey consigned to Germany will be carefully examined before it is allowed to enter.

It has been intimated that the French customs officials may recognize the United States certificates. While every country to which we export honey may not officially recognize our certificates, their use will undoubtedly create a favorable impression, particularly among German buyers, and cause their inspectors to look upon our honey with more favor.

All U. S. shipments of honey for export upon which certificates of inspection are requested will be subjected to chemical examination by means of the Fiehe test and the diastase test customarily used in Germany for examining honey. Federal honey inspectors will be instructed immediately in making the necessary chemical tests. The Bureau of Chemistry and Soils will cooperate in this work and will make examinations un-

til the regular inspectors have become thoroughly acquainted with the technique of these tests.

The use of the Fiehe and diastase tests makes it imperative that beekeepers whose honeys ultimately reach the export markets refrrain from overheating their product, and it is quite obvious that only enough heat should be applied to facilitate straining. To strain readily honey need only be lukewarm. Beekeepers are also warned by the department not to permit honey to lie in storage for prolonged periods at abnormally high atmospheric temperatures, as this practice may impair the diastase.

The United States standard grades for honey have elicited much interest abroad, and the official color graders have been shipped to several foreign countries, so it will be only a short time before foreign buyers will be well acquainted with these grades.

The announcement abroad that the United States certificate carries with it a statement as to the Fiehe and diastase tests will give buyers an opportunity to specify hereafter that all future shipments be certified. Any lot of honey which has been granted a certificate should in all respects meet the German requirements for entry into that country. This in turn, say the honey specialists of the Department of Agriculture, makes it necessary for United States exporters and honey buyers better to acquaint themselves with the provisions of the grades.

Does Inspection Cover Bees in Houses?

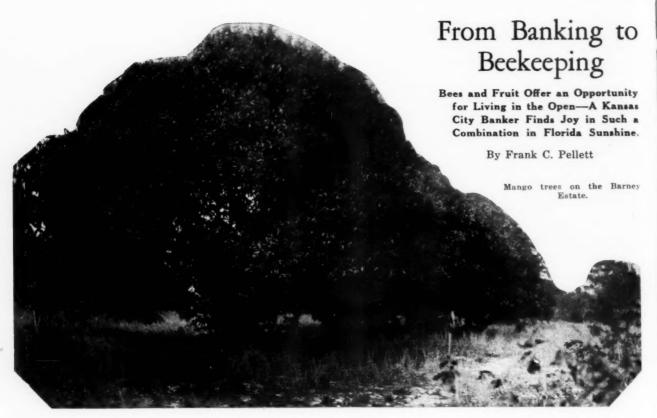
Bees have brought up a queer problem here. Just how far a bee inspector can go in routing a swarm of infected bees from a man's house will have to be determined by courts.

This is the ruling handed down by Attorney General W. D. Gillis in answer to a question submitted by John Welch, commissioner of agriculture, who said infected bees are often found in the houses of citizens, and inspectors are at a loss as to what to do about it.

The law provides that where infected bees are found, the owner will be requested to destroy them, and if he fails, he may be convicted of a misdemeanor. Upon such conviction, the inspector can go in and burn both the bees and the hive and "bury them at least one foot under the ground."

The attorney general did not rule on whether this law could be applied to the extent of burning a man's house, but said, in any event, the owner must first be found guilty of a misdemeanor in refusing to destroy the bees before the inspector could step in. Beemen are watching the outcome of this question in the West.

G. P.



Banking is a great business. The money that flows through the banks is the life-blood of modern industry, and much of present day prosperity is due to the discernment of bankers in expanding or curtailing credit, as circumstances indicate.

The banker is a very essential cog in the wheel of our present day complicated business mechanism, but he deals with lifeless and intangible things. The individual who loves life in the open and who delights in association with plants and animals, finds the gilded cage in which he works a sort of prison which shuts him away from life, sunshine, activity and all the procession of the seasons. Columns of figures may represent the rising tide of wealth of his community, but they do not satisfy the soul that hungers for contact with bees and flowers, with fruits and grass and all the myriad of living things which make rich the soul of the gardener who loves them.

J. W. Barney lived in Kansas City and banking occupied the busy days during the better years of his life. He had the soul of a naturalist and confinement was unsatisfying, no matter what the financial rewards might be. To such a man it often happens that the richest and most productive years of his life come after the most active period, when he is ready for so-called retirement. Barney "retired" to a little country place near Bradenton, Florida, but retirement for him only meant release from less congenial labor, and

the opportunity to indulge his inclination to work with bees and with plants instead of with overdrafts and credits, with checks and balances. Even now he probably puts in longer hours on his little farm than he ever did in the bank, but one has only to spend an hour with him among his bees to realize that never has he found so much joy in his work.



J. W. Barney admiring an unusually large cluster of grapefruit.

In the Open Country

In a secluded spot on an inlet from the sea, Barney has established his orchard and his bees. In his own water fish may be caught and oysters are always to be had for the taking. "Variety is the spice of life" is an old saying, and Barney surely has the variety.

Everything indicates that the farm returns a satisfactory income, but the place has been built up primarily for the returns it gives in everyday living rather than for financial returns. Mr. Barney loves to work with the bees and the fruits for their own sake, and finds his greatest reward in the production rather than in the sale of his crops.

It would be hard to find a place of similar extent where more interesting things are to be seen; and yet everything has a practical aspect. Dozens of varieties of fruit are grown in an experimental station manner. Larger profits might be returned by solid blocks of the best commercial varieties, but much is to be learned from the growing of numerous kinds of fruit under similar conditions. A horticulturist like our friend likes to grow a half dozen different kinds of oranges on the same tree and, in so doing, learns the comparative value of such qualities as time of ripening, sweetness of the fruit and productiveness of each variety.

There are ten acres of citrus fruits, mostly oranges and grapefruit. There are large varieties and small varieones a

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every taste and every market. When Mr. and Mrs. Barney moved to Florida, the most active years of their lives were behind them. They wanted to spend their time with the things which would give them the greatest satisfaction. The greater the variety that they could crowd into their little farm, the greater the "spice" the remaining years of life would offer them. To me, with similar inclinations, it appears that they are succeeding admirably. Never have I eaten so many oranges or grapefruit in a single day as on the day when I visited them. To properly appreciate the peculiar qualities of a fruit, one must taste it, and it is no little task to sample all the varieties which were hanging on the trees that day.

Fruit from Asia

In north and central India and other tropical portions of Asia, many varieties of the mango are cultivated. The fruit is soft and juicy, with a delicious aromatic flavor. It forms an important article of food for a large portion of the population. In 1782 the mango was introduced into Jamaica and later into Florida. It is very sensitive to frost and is suited to a very limited portion of the United States.

Situated on the coast, the Barney farm offers a congenial situation for mango trees, and here one finds a large number of them. For several years our friend has paid special attention to the mango, trying the various varieties and learning the



Mr. Barney and one of his large orange trees.

peculiar demands of that delicious fruit. Now there are fourteen hundred mango trees of many varieties and of various ages. The unusual collection attracts horticulturists from far and near, and there is a very good prospect that the little grove which has been planted to satisfy its owner's love of the interesting and unusual may prove to be very profitable as well, for Americans do not hesitate to offer a premium for a quality product which attracts them.

Avocados Also

In tropical America there is a native tree with a fruit somewhat like a large pear in shape. It has a leathery, green rind and tender, juicy flesh enclosing a hard nut. The pulp has been termed "vegetable butter," since it melts upon the tongue.

The fruit of the avocado has long been prized in South America, but it is only within recent years that it has become well known in our country. In Florida and California, avocado groves are now planted with prospect of good profits from their cultivation.

The pulp of the fruit is eaten with a spoon, but is not often agreeable with the first taste. As with olives and some others, one must cultivate a taste for it. Sometimes avocados are eaten with pepper and salt, like melons, while others prefer to season with lime juice or sugar.

"Alligator pear" is the name by which the fruit is known in some localities, although it is hard to see any connection between the avocado and that reptile. It is also sometimes called "vegetable marrow."

New fruits are popularized but slowly, but in the case of the avocado the region in which they can be grown is so limited, while the entire country furnishes a market, that prices bid fair to rule high for a long time to come. Mr. Barney called my attention to one small tree from which he had sold the fruits for 25 cents each, the total yield of the tree amounting to \$96. Special care must be given in the propagation and planting of the young trees, and sev-



The apiary and the home, both well-kept.

eral years pass before they become profitable. There are now eight hundred of these trees growing, along with the mangoes and citrus trees, and soon they will add their profits to the returns from the oranges and the bees.

A walk about the place reveals surprises at every turn. Lemons five inches or more in diameter, trees whose curious fruit is interesting for ornamental purposes only, beautiful flowers and climbing vines whose luxuriant growth hides the fences and outbuildings.

And Then the Bees

Under the shade of native trees close to the orchard is as pretty an apiary as you will find in many a mile. With standard equipment and well painted hives, following the accepted practice, Barney is a successful beekeeper. His leadership has been recognized by his neighbors, who selected him as president of the Florida Beekeepers' Association. Just now this organization is trying to work out a plan to pool the honey from the Palmetto State and sell it through one central agency. In this manner it is hoped to avoid depressing the market by dumping when no demand exists, and to insure a uni-form product. Just now Mr. Barney, along with others who are working with him, is giving much time to this project. He showed me many jars containing the blended honey from the major sources produced in Florida. He certainly convinced me that it is possible to offer a high quality product which, when properly blended, will take care of the greater part of the Florida honey.

The location is not equal to the best that Florida offers, yet the bees pay very well. One advantage of the beekeeper over the fruit grower lies in the fact that honey is not a perishable product and can be kept over if the market does not offer satisfactory returns for immediate sale. When the market for fruit is glutted, a loss is difficult to avoid.

Saw palmetto yields a light-colored honey of good quality. In this vicinity the yield runs about fifty to sixty pounds per colony under favorable conditions. The citrus orchards add something and the bees get some nectar from mangrove along the seashore, where sea-grape also yields. In late summer, the wild sunflower and Spanish needle come in.

Advancing years do not seem in the least to limit the enthusiasm of this man of youthful spirit. He outlined enough things which he has in mind to undertake to occupy many years to come. It is to be hoped, for the sake of Florida beekeeping and horticulture, that he may be spared in health and strength to live to reach the century mark. His banking experience gives him a grasp of the problems which the Florida Beekeepers' Association is undertaking in their selling organization, and he proposes to give all the help that he can toward their solution. His experiments with tropical fruits are making important contributions to the advance of fruit growing in that region, and, best of all, he is enjoying life immensely in giving his attention to the solution of problems of real help to his generation.

As I was leaving, I was surprised to find hot water at the kitchen faucet when there was no fire in the house. He has utilized Florida sunshine in an ingenious manner to heat the water for kitchen and bath. On the roof of the house he has a tank covered with glass to admit the rays of the sun. The windmill lifts the water to the tank and the sun keeps it hot, so that, once installed, he has only to keep the mill greased to get hot water whenever the faucet is turned. Perhaps he may yet be able to find such near automatic methods of managing the manipulation necessary to securing a crop of honey.

Biometry of Bees' Tongues

One of the first large scale measurements of insects, comparable to the elaborate measurements made by anthropologists of members of the human race, has been undertaken by Dr. W. W. Alpatov, of the Zoological Museum of Moscow, now working at the Institute for Biological Research under Professor Raymond Pearl, of the Johns Hopkins University. Thousands of bees from Russia and the United States were examined during the investigation, which has shed interesting light on problems of beekeeping, according to a report in The Quarterly Review of Biology.

The anatomical features to which Dr. Alpatov devoted the most attention in this huge survey with the microscope was the tongue, tool of supreme importance in the business of honey collecting. In Russia it was found that bees' tongues increase in length as one travels south, until in the Caucasus, the southeasternmost corner of European Russia, are found the longest-tongued bees now known to entomology. In the United States no such geographical distribution held good, a condition accounted for by the fact that all honeybees in this country are species introduced from Europe within the last two or three centuries. Furthermore, progressive beekeeping has fostered interbreeding with bees from all parts of the country. Racial characteristics cannot be as fixed as with indigenous bees bred in the same locality for hundreds of years.

Before the war the Caucasian bees were the subject of special investigation on the estates of one of the members of the royal family of Russia. The records left by the agronomist in charge show, said Dr. Alpatov, that crops of red clover, a plant that carries its nectar too deep down

An Interesting Mexican Apiary



I just returned with a party of friends from a five weeks' tour throughout old Mexico.

Amongst a lot of pictures I took, I took one from a small apiary of bees at Cuernavaco, Mexico, about seventy miles south of Mexico City. As the people are all Spanish down there, I could not get any information regarding the little apiary.

I thought perhaps you might be interested in a copy of picture, so am enclosing one.

American Bee Journal

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in the blossoms for most bees, were much heavier in fields where there were hives of Caucasian bees than where they were absent.

Another point emphasized by Dr. Alpatov was the difference in tongue length of worker bees of different types but of the same race. Those collecting pollen, for instance, had shorter tongues than those collecting nectar. Slight as the present information on the subject is, it shows a promising possibility for systematic investigation of the selection and adaptation of the worker bees of different races to different plants. The preference of certain bee races for certain plants is the cause of differences in the quality of honey collected. It happens often that the color and flavor of the honey collected in the same locality by colonies belonging to different races differ greatly. This has naturally a certain importance from the point of view of marketing honey.

Provision for further large scale measurements of the honeybee, according to Dr. Alpatov, would bring to light facts of practical value both to beekeepers and theoretical scientists alike.

Moving Bees Short Distances

I have just read in the April number of the American Bee Journal the answer given to "Kansas" in regard to moving bees short distances. Here is a plan I have followed for several years that has proven the most successful of any I have ever seen. I am moving several colonies now to get them farther away from the path to the poultry house. The plan is very simple and is as follows:

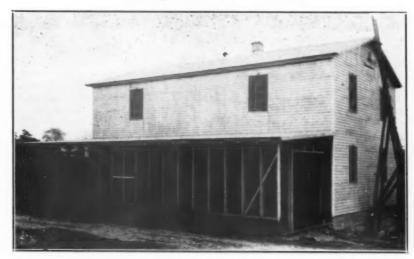
Lift off the super or one hive body, in fact any part of the hive except the brood nest and queen; give it a cover and bottom board and, after moving the rest of the colony to the place desired, place the super in its place. This will catch all returning Then, after a day or two, unite the two parts by placing the super on top of hive removed, with newspaper between. This is the same as uniting any two colonies by the well known newspaper plan. If the super is lifted carefully some cool morning or any time when the bees are not flying, you will have no trouble with bees returning to the old

This plan is equally successful whether the distance to be moved is five feet or several hundred feet.

J. W. Peterson.

(This method is good, if there are no other colonies in the same spot. But when there are some near enough, the bees that find no queen at home often join those colonies that are queenright.—Editor.)

Getting Rid of Robbers



T. C. Asher, of Brooknea, Virginia, has twenty-six apiaries. With a central plant, it is necessary to haul in loads of honey under all kinds of conditions. When no flow is on it takes but a few minutes to attract thousands of bees to a truckload of honey being removed to the extracting room. The picture shows how successfully Mr. Asher has met this problem by means of a screened driveway beside the honey house. The driveway is screened for the entire length of the building and is

covered with a good roof. This makes it possible to drive two or three truckloads of honey beside the building at one time. If it is late and there is not time enough to unload the same evening, no bees can reach the honey and no harm is done by waiting. With a screen door at each end there is no delay nor any inconvenience because of flying bees. Escapes at the top of the screened wall permit such bees as come in with the truck to return to the open air.

A New Bee Book

Practical Bee Breeding, by A. Gilman, is the title of a new book of 264 pages lately received from the press of G. P. Putnam's Sons, of New York. This is an American edition of an English work which sells at \$2.50.

As the title indicates, the book is devoted principally to the problem of improvement of the bee by selection and breeding. There is a chapter on races of the honeybee, one on desirable characteristics, and chapters on queen-rearing, control of mating, preeding influence of the male, line breeding, etc.

The author appears to be a well informed beekeeper under English conditions, but we judge has not kept in very close touch with late American beekeeping literature, since few recent writers among Americans are quoted.

Breeding along accepted lines is discussed at length, but the author disapproves of artificial mating, which has recently come to public attention. He says:

"To us the whole conception is repulsive and we do not hesitate to condemn it thoroughly. We believe that the true solution of such problems can be arrived at only by man cooperating with nature."

He recommends restriction of the breeding of drones and the capture of those from unwanted hives and the permission of flight at time that virgins are released only to desired strains. Those who have attempted the breeding of bees will realize the difficulties of success by such methods.

The book is printed in large type, is easily read, well bound and quite attractive. It may be read with profit by all those who are interested in problems of breeding of the honeybee.

Another New Bulletin

There is greatly increased interest in the use of bees for the pollination of orchards. In order to provide information for fruit growers, Prof. R. H. Kelty of the Michigan Agricultural College has recently issued a bulletin entitled "Renting or Keeping Bees for Use in the Orchard." It is designed to serve the fruit grower who is interested only from the standpoint of pollination, and does not attempt to give details concerning the usual hive manipulations.

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DR. H. E. BARNARD, PRESIDENT

Sweetened With Malt Syrup and Honey

"The sweetness of malt syrup and honey is toasted right into them—the sweetness of malt syrup and honey—just taste the difference." So reads the advertising copy of Post Corn Flakes. Their representative has sent us a number of proofs of their advertisements now running in their New England Corn Flakes Campaign and the word honey certainly stands out in good bold face type. Another way to use honey and what a good piece of advertising.

Crisco Cake Book Will Carry Suggestions for Use of Honey in Baked Goods

Here's what Dr. M. B. Graff, in charge of the Bakery Research Department of Proctor & Gamble, wrote Dr. Barnard:

"Our first effort at putting out a cake book, with suggestions for making variety and developing formulas, we hope will be ready early in June. This, of course, carries some suggestions on the use of honey and points out the characteristics and the advisability of making use of the honey flavor. We will see that you get copies of this when it is out."

Institute Represented at Three Important Meetings

Dr. Barnard attended the following meetings, telling at each one the honey story, the service department of the Institute and our plans for the future:

American Home Division Illinois Federation of Women's Clubs, Chicago, May 16.

Twenty-seventh Annual Meeting of Millers' National Federation, Chicago, May 17.

Conference of American Honey Producers' League, Marketing Conference and meeting of Minnesota Beekeepers, Minneapolis, May 19.

"Honey in the Picnic Lunch"

Well, the story is on its way to Mrs. Migliario, editor of The Household Magazine, and now let's all watch for it. This article was prepared by the Institute and contained fifteen honey recipes for picnic goodies.

Beekeepers, don't forget honey at your picnics and field meets. There's real flavor and satisfaction in honey combinations for the picnic.

Another fine response just came in

from the director of a newspaper home economics department. This is what Mrs. Mary Martensen, Director, Chicago Evening American, Home Economics Department, writes:

"Thank you for your letter and enclosures on 'honey'. We are very glad to have additional material on this subject for our Honey File. We frequently have requests for dishes of honey in place of sugar for cooking. Please put us on your list to receive your material regularly.

"You may look for an article on 'Honey' (using your material) very shortly."

And We're Suggesting Honey With Sauerkraut!

Roy Irons, secretary of the National Kraut Packers Association, is an old friend of Dr. Barnard's. Among other things one day Dr. Barnard wrote him about the possibility of honey entering the sauerkraut picture and this is what Mr. Irons answered:

"We have your letter of May 15th and appreciate the kindly remarks about our efforts to popularize sauer-kraut and extending us wishes for further success. The thought has never occurred to us, but perhaps a kraut dish could be prepared to include honey. Thanks for calling this to our attention."

This association has published a splendid 31-page booklet with over fifty unusual sauerkraut recipes including practically every food service—soup, cocktails, cutlets, and even salad dressing with kraut. There's one suggestion for Baked Sauerkraut with Apple that calls for brown sugar. We're going to try that one with honey and if it results in that appetizing dish we think it will, there'll be a honey-kraut combination in the next sauerkraut leaflet.

The Drugstore as a Good Honey Outlet

Medicinal values have been attributed to honey ever since its use through the centuries. One of the most popular beliefs is that honey is unusually beneficial in cough preparations and in most of the patent cough relievers today honey is listed in the ingredients. This isn't the time of the year when we boost cough medicines but it is a time when we plan our marketing campaign for our next honey crop.

A most helpful letter from Mr.

Harding, who handles all the advertising of the Pinex Company, suggests some real possibilities for boosting honey through drugstore channels. We quote from his letter in the hope that some of our beekeepers and bottlers will follow out his suggestions and see that druggists are furnished honey at a figure that will enable them to sell it at a good margin of profit to themselves as well as at a reasonable price to the customer.

"Pinex, as you will probably recall, is sold in a 2½-ounce bottle, and contains the necessary ingredients for making a pine tar cough remedy. The housewife adds 13½ ounces of sugar syrup or strained honey, and the result of the mixture is a pint of cough syrup, produced at a considerable saving as compared with the cost of an equal volume of ready-mixed cough medicine.

"You will appreciate that this saving in money is one of the large factors in the sale of Pinex, and the saving is, of course, most pronounced when the housewife mixes her own simple syrup from granulated sugar and water. However, the use of strained honey instead of simple syrup results in a honey and pine cough syrup, which most people doubtless prefer, and on which the cost should be very little extra. In this respect the trouble has been that the retail druggist uses very little honey in his business, and obtains that little from his wholesale druggist at comparatively high cost. A solution of the problem, so far as the honey interests are concerned, would seem to be in supplying the druggist with honey in a 14 to 16ounce container at a price which would enable him to sell the honey at or about its usual price as sold by the retail grocer.

"The Hook Drug Stores of Indianapolis make an effort to sell a bottle of honey every time they sell a bottle of Pinex. I understand they retail their package of honey at about 35 cents, and obtain their supply either from a broker or one of the wholesale grocery houses. The sale of this honey increases the druggist's profit on every sale of Pinex and the slight effort involved builds quite an additional volume of business on honey.

"The procedure, as nearly as I have been able to find, is for the drug clerk (when a sale of Pinex is being made) simply to ask the purchaser whether he ever used strained honey instead of sugar syrup in connection with Pinex. There is nothing in this that any druggist cannot easily do, and it should be borne in mind that Pinex is sold in very large quantities not only by city druggists, but by the druggists in every town and village in the United States and Canada.

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"The only problem involved, as I see it, is for the honey industry to give the druggist the small amount of educational effort involved, and to arrange to extend to the druggist the proper facilities for purchasing the honey at the same prices which are available to the retail grocer. It seems reasonably certain that any druggist who will start with a few packages of honey and give the idea a trial, will develop a consistent sale of honey for this use."

After a letter like that, chuck full of constructive suggestions, we ought to give a skyrocket for Jack Harding. Get out your notebooks for next fall and winter suggestions and under No. 1 mark, "Work with my druggist to sell a jar of honey every time he sells a bottle of Pinex." (Here a good sales talk to follow would be that when suggesting that housewife use honey, she need not bother to cook up anything, need not dirty a kettle in cooking, as in case of sugar syrup, and avoid labor, for honey is ready just as it is, blends with Pinex concentrate and then all ready for

immediate use.) There are many summer suggestions for using honey in the drugstore during the hot weather. The simplest and most practical of these is the sundae idea. Pouring warm honey over ice cream or honey over fresh fruits on ice cream, blending fresh strawberries, pineapple, raspberries, cherries and all sorts of fresh fruits with honey for tasty sundaes. Honey is a most delicious sundae syrup and druggists who use it in this manner will find it boosting their sundae business, netting, too, a good profit.

No Honey on Hand

The Institute has been making every effort to keep in touch with secretaries of state associations, for we are not only desirous of helping them but we need them to help us. There are many things we can do together that neither can do alone. We are happy to report very good response from such workers and it has been surprising to us to get one report after the other, "very little or no honey on hand—there has been an increasing demand for honey—even now that hot weather is coming on."

That is good news and ought to stimulate every beekeeper to be a better beekeeper and get a bigger crop this year than ever before. The demand is going to increase, so we must try to keep our production increasing proportionately.

Honey Helpings

"Honey Helpings" was the title of the first clip sheet sent out by the Institute. It contained an Easter menu in which practically every combination contained honey as one of its ingredients. Recipes for nine dishes were given and we quote just a few of the answers we received from home economic workers to whom this material was sent.

Anna J. Peterson, Home Service Department, People's Gas Light and Coke Company, says:

"I shall take pleasure in looking over the enclosed suggestions for new uses of honey. After testing out these recipes, I will be glad to use them in connection with our cooking demonstrations."

Alice Bradley, principal, Miss Farmer's School of Cookery, says:

"It was nice of you to think of us and to keep us in touch with the work you are doing with honey. We were interested in the recipes which you sent us and may be able to introduce one or more of them into our demonstration or magazine work during the season."

Erna J. Bertrams, director of food economics, Armour & Co., says:

"I am going to try the honey baked ham you suggest. As a rule, I use brown sugar, but I should think the honey would add a more delicate flavor to the Star ham. In the future we shall consider honey very seriously as a seasoning for our meat dishes."

Jessie A. Knox, editor, "Practical Home Economics," says:

"I am sure I can make good use of many of the suggestions in my syndicate work, and perhaps occasionally in the magazine. We will certainly do all we can to cooperate with you."

Has the Right Idea

J. H. Ayers, of Littleton, Colorado, in an open letter to the editor of the Rocky Mountain News of Denver, lets it be known that he cannot understand why so many people will live in apartment houses when it is so much more pleasant to live in rural homes; but there are many reasons for that choice, which we will pass over and then follow Ayers to the breakfast table:

"And as the purple shadows of the night flee away, could any breakfast be finer than that served in the rural kitchen, a breakfast of honey and pancakes, Jersey cream and amber coffee, and with fresh eggs and crisp bacon, and apple pie served on the side!"

After reading Ayers' breakfast menu we had to arise early and partake of the mentioned bill of fare, with the omission of the apple pie, as we found so much pleasure with the honey on our pancakes we felt like the old negro who was given plenty of fat bacon and then asked, "What else. Uncle?"

"Good Lord, boss, what else am dere?"

J. B. Dillon.

Iowa Apiarist's Report

Another valuable report has been issued by Prof. F. B. Paddock, state apiarist of Iowa. Ninety pages of the best available information on upto-the-minute problems relating to beekeeping are gathered in the pages of this book. In addition to a report of the year's official work of the apiarist, there are numerous papers by well known writers in the beekeeping field. Of special interest is a paper on the "Sugar Concentration of the Nectar of Various Plants," by Dr. O. W. Park. Dr. Park has worked out some rather original methods of investigation which greatly simplify the problem. By checking the yield of nectar under different degrees of temperature and humidity, some decidedly interesting information as to conditions under which common plants secrete nectar came to light.

Every serious student of beekeeping problems will find something of interest to him in this report. Copies may be had by addressing Prof. F. B. Paddock at Ames, Iowa.

Feeding Syrup in Combs

After reading your answers to "Michigan" in March American Bee Journal, I feel tempted to say a few words from actual experience covering several years. I fill the comb by laying it flat down in a large pan I had made for the purpose. Fill a fruit jar with the syrup you intend to feed, screw the cover on it after piercing it full of very small holes, and shake it "pepper-box fashion" over the comb until you have it nearly filled. Then turn the comb over and do the same with the other side. Put this inside the hive up close to the cluster of bees. If I fill two frames I put one on each side of the cluster. The bees take care of the syrup all right. I do not see anything difficult or objectionable about it.

Another way that is just as simple and easy is to pour a little of the syrup on the comb in the pan and with a paint or varnish brush gently brush the syrup in the cells Continue this till you get the desired amount brushed into the comb. Use the brush the same as if you were painting. Some beekeepers use a force pump, but I consider this too mussy and liable to cause robbing by getting the syrup scattered around. With my method I keep the syrup all confined to the pan.

I do not do all my feeding this way, because it makes it necessary to open the hive. I do the most of my feeding from a fruit jar inverted over the frames, first making several holes in the jar cover. By this latter method it is not necessary to disturb the brood nest. J. W. Peterson.

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S INCE the dawn of modern bee-keeping practice, the various bee

diseases have been as a thorn, ever

irritating and fretting the honey pro-

though hundreds of thousands of

dollars have been expended in the

long-continued effort to control these

diseases, particularly those of the

brood, it is quite apparent that actual

progress has been exasperatingly

slow and that the outlook for success in the near future is none too bright.

although various states are beginning to awaken to the importance of dis-

ease control, as is witnessed by the

\$39,300 appropriation for this pur-

pose in Michigan, \$35,000 granted by

the Illinois legislature, and the Cali-

At the present time there is dawn-

fornia law recently enacted.

ducers of the United States.

Disease Control---Can It Be Attained?

By Natt Noyes Dodge

honey yields, thereby helping to lessen the overproduction with which the industry has been faced and which has had considerable to do with recent low prices. Under the new regime it is prophesied that a lower standard of prices coupled with an immense increase in the volume of honey sold, due to the expansion in consumption effected by modern publicity methods, will make a larger national honey crop and a lower per pound production cost the immediate goal of the industry.

As with many laws which are designed to overcome social evils, the state bee disease regulations, city traffic laws, and national and state prohibition enactments are characterized chiefly by the inabilty of officials to execute them. This is a fundamental weakness of the legislative method of problem solving. Strange as it may seem, public opinion is stronger than legal penalties, and a broad white line down the middle of the street will hold more irascible motorists within bounds than half a dozen hard-boiled policemen and the vision of a judge and a fine.

Perhaps the writer is too visionary for the matter-of-fact world in which we live, in which case his suggestion will at least have done no harm. In any event he wishes to advance the following plan: that the beekeeping periodicals, the various bee supply manufacturers, the American Honey Producers' League, and other of the beekeepers' organizations, either individually or collectively, offer a cash prize for the best suggestion brought



The bee Inspector, as a Upper Left: The bee Inspector, as teacher, should be a welcome visitor. B low: Professor H. A. Scullen, Oregon well known beekeeping specialist and Secr tary of the State Beekeepers' Association. Oregon's

Above: Members of a County Beekeepers' association accompany the Inspector on one of his tours of inspection. Below: Professor R. L. Webster of Washington State College, is a popular official among beckeepers. He was recently chosen as Secretary of the State Beekeepers' Association.

forward for the solution of the problem of disease control. Announcement of this contest and of the prize to be awarded should be made through the beekeeping publications and should not be permitted to get into the public press. Such an offer should focus the attention of beekeepers on the importance of the problem, and should also bring forth some very useful suggestions for handling the disease situation.

Not long ago the writer read in the British Bee Journal of a plan of disease insurance being operated for the benefit of beekeepers in the British Isles. It would appear that here is the nucleus of an idea for effectively placing disease under control.

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ing a future for beekeeping which makes disease control all the more important than heretofore. The idea has been advanced, and has secured considerable credence, that bee diseases are in a way a boon to the industry because they cut down Let us suppose that an insurance company, or even a powerful beekeepers' organization such as the Mountain States Honey Producers' Association or "the League," should institute an insurance proposition through which a beekeeper might take out an insurance policy, paying as a premium, let us say at a guess, 10 cents per colony per year. According to the terms of the policy the company would agree to reimburse this beekeeper-policyholder at the rate of, let us say, \$8.00 per colony for each colony burned on account of disease infection. The practice of such a plan should produce several results. First, it would serve as a method of financing disease control on the same basis that the payment of a multitude of life insurance premiums finances the payments made to deceased policy holders' beneficiaries; second, it would furnish a powerful incentive to beekeepers to ask for frequent inspection (the inspectors would in all probability be men employed by the insurance company) and to discover and destroy at once any disease which might possibly develop; third, it would do away with all of the methods of treatment now in use except burning, which, according to the California inspectors, is the only safe and certain method of stopping the spread of infection; lastly, it would take disease control out of the hands of politics which fluctuates from big appropriations and careful inspection in one term to entire lack of appropriation and the consequent lax inspection the following,

with the loss of much of the good previously accomplished, and places the work under the care of a private corporation or a beekeepers' organization, where it is carried out on a

purely business basis.

Of course, there are numerous difficulties involved in the carrying out of such a proposal, among them being the problem of inducing all of the beekeepers to take out a policy to cover their bees, the checking



Unless most carefully carried out, treatment for disease may serve to spread it.

up necessary to be sure that all colonies reported destroyed were actually burned and that the reason for their destruction was disease. However, the writer is of the opinion that such a program could be worked out, and that if it were made nation-wide in its scope its accomplishments would be much greater and much speedier in effect. The financial problem involved would be less of a burden than under the present hit-and-miss policy with some states working hard for control within their own borders and others, perhaps a neighboring state, neglecting the matter entirely, with the result that interstate enmities and inter-sectional dis-

putes with hard feeling all around have been by no means unknown.

The above suggestion has its drawbacks; however, the writer offers it by way of carrying out the thought expressed in the first paragraphs of this article — i. e., that there are other ways of attempting disease control than by a continuance of the present rather doubtful means, and that the offering of a substantial cash prize for the best plan submitted would put into motion a project in the carrying out of which the League, supply manufacturers, beekeeping periodicals, and marketing organizations might all cooperate, and to which the beekeepers of the nation might add their support and their ideas for the benefit of the entire industry.

(Switzerland has such an insurance method and is well pleased with it. It is worth trying.-Editor.)

Bee Finds Place in Governor's Speech

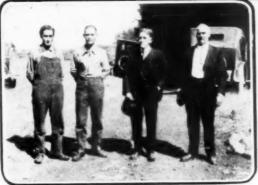
"The honeybee must not be forgotten," said Governor George H. Dern in his inaugural address to the eighteenth legislature of the state of Utah. "During the past seven years the native bee population has increased from 42,000 colonies to 70,-000 in number, and the percentage of disease has decreased from 12 per cent to 2 per cent.

"Furthermore, the transient bee population, coming into our state for

> summer grazing only, has grown from thirteen carloads in 1926 to thirty carloads in 1928. Such a record is not only indicative of care and good service on the part of the Department of Agriculture, but also points to opportunity for investment and occupation for our people.

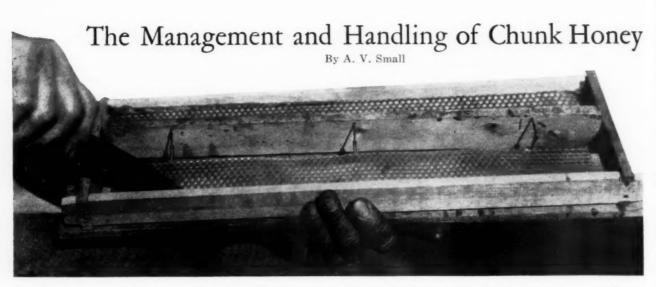
> "What I should like to do is to suggest possible methods of improvement in conditions and to call attention to necessary legislation of the subject."





Left: Washing-ton's four original county inspectors; left to right. Man-dery, Cox. Franklin, Espay. Above: Fire, the safe, sure de-stroyer. Right: The stroyer. Right: The bane of bee inspec-tors, a neglected beehouse and its un-





The three rubber bands, looped over nails as shown and over three right below, hold the starter tightly to surface of wood while wax is poured to fasten.

WE give you the methods we use in handling four hundred colonies of bees for chunk and extracted honey in the sweet clover region of southern Kansas.

Sweet clover is our main souce of surplus. We secure, from the county assessor's report, the acreage of sweet clover under cultivation in each township. By driving over the townships that are reported to have a large sweet clover acreage, we are able to find the most desirable locations for bee yards with the least expense of time and gas.

In this district a location that has a large acreage of sweet clover bloom in three or four fields one year may be absolutely without bloom the next year, because all the neighboring fields bloom the same year and are in other crops the succeeding season, so it is often necessary to move bees and equipment has to be designed with a view to easy moving.

We buy bees any time the price is right and as a result we have both 8-frame and 10-frame equipment and both metal and wooden covers. We put 8-frame hives in one yard and 10-frame hives in another. Where wooden covers are used, we have an inner cover under the regular one.

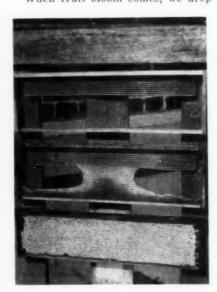
Above the inner cover and below the outside cover, regardless of whether it is wood or metal, we place a burlap sack which is left on both summer and winter. Sometimes the escape hole in the inner cover is left open and sometimes it is closed. After a good many years of experience with hundreds of colonies, we do not know which is the better plan. The man who has never kept more than a dozen colonies could probably tell you right off the bat, but, in all sincerity, we don't know.

In southern Kansas there used to be several of the best beekeepers who packed their hives every winter. This practice has been discontinued by the commercial beekeepers as they could not make it pay. We use the burlap sack mentioned and a good entrance guard to keep out mice but do not pack them.

Colonies are wintered two stories high with approximately a full body of honey on each. All management is planned to save time and with the idea of reducing the labor to such a simple process that it can be performed by inexperienced help with a fair degree of efficiency.

When we go to a yard, it is to do certain definite things, in the shortest possible time, and we get out just as quickly as we can. Time is the most valuable thing we have and the only place where brains have any real value, except to fertilize the roots of the hair, is when they are used to reduce the time necessary to do the work.

When fruit bloom comes, we drop



Starter above and below, in center frame only, insures straight comb all through chunk honey supers.

everything else and go to the bee yards, open every coloney to see if there is good healthy worker brood and a reasonable amount of stores. Dead colonies and queenless colonies, after looking them carefully over for disease, are placed on strong queenright colonies to be cared for and cleaned up. This leaves a few of the strongest colonies three stories high after this visit.

We go to the outyards every week or two and open a few colonies to keep in touch with conditions. We estimate the pasture, as sweet clover shows green in the fields and sometimes an apiary is moved at this time to a better location. But there is no more real work to be done until the middle of May, when every colony is opened by prying the two bodies apart, tipping up the top body, and looking for queen-cells. When the body is let down, an air crack about 3/8 to 1/2 inch is left in the front to give ventilation to reduce swarming.

We put a third body on all the strong colonies about this time and if the colony is extra strong, a comb of brood is placed in this body. If we find queen-cells, we split the colony in two or three parts, being sure that there is one good queen-cell with each division with a reasonable amount of bees, brood, and stores, placing the weakest division on the old stand and paying no attention to the queen. If one of the divisions is exceptionally strong, it is given a hive body of empty comb.

This is all the attention we give these colonies until they have developed laying queens, when they are treated as ordinary colonies and supered according to their strength. Those that fail to develop a queen are reunited with some other colony. They seldom swarm.

The greatest value of this measure lies in the fact that such work with swarms can be carried on successfully contro sary t in con Abo

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fully by unskilled labor. Any swarm control measure that makes it necessary to find the queen is impractical in commercial honey production.

About the first of June we go over the yards again looking for queencells as before and splitting those with cells in the same way. Bodies of empty combs are given where colonies seem crowded and sometimes combs of brood are alternated with empty combs. Such drastic measures must not be resorted to until settled warm weather is here to stay. All queens are allowed to run in these stacks until the major honey flow is on.

Then, and not until them, do we put on the chunk honey supers and oueen excluders.

The process is about as follows: At this time most of the colonies are three stories high with brood in all three bodies. The middle one contains most of the brood. The cover is taken off, a generous amount of smoke puffed over the combs and down between. A comb of brood is taken out near the center of the body and examined for disease, then the body is lifted off practically free from bees.

One comb of brood is also examined from the middle body and if the two combs show no disease cells, we assume the colony to be healthy and give it a queen excluder above the second body and the supers are placed above the excluders.

The colonies that seem to be the strongest are given two chunk honey supers. Those not so strong are given a queen excluder above their second body, with their own third body on top of this and the third body from a strong neighboring colony placed at the very top, making the colony four stories high. These two upper bodies above the queen excluder may average two or three combs of brood each. They are slipped back a half inch to allow for the flight of drones or for the flight of a possible virgin queen.

From now on about all we have to do is keep tab on the honeyflow and add supers. As soon as we can take off the sealed honey we begin to market the crop. The hive bodies above the excluders are extracted and returned to the colony. The chunk honey supers are taken to the honey house where the chunk honey is cut out and packed for market as bulk comb honey.

Kinks in Handling Chunk Honey

We have several little tricks that may be worth passing on. In cutting out the chunk honey we leave one row of cells at the top of the frame. The frames are put back in the supers and the next day these supers are put back on the bees. This one row of cells, if the flow is sufficient, serves as a starter and, if the supers

are not needed for storage, the bees clean up the frames. When the supers are removed in the fall, the frames are dry and ready to scrape in preparation for the next season. This row of cells, if not used the current year, will become soiled with propolis and will not do for the following year.

Scraping frames and cleaning supers is our winter work. We find a starter 1½ to 2 inches deep better than full sheets in the chunk honey supers as full sheets wave and buckle badly when put in during the winter and with 600 supers to fix, winter is the time to do the work. We sometimes have temperatures of 104 degrees in the shade during the time supers are being put on. At this temperature a full sheet will not support itself during a 15-mile drive over the country roads in an open truck, but starters will stand these conditions all right.

We fasten the starters with Vandusen wax tubes. When pure beeswax is used, if it is hot enough to get a grip on the wooden frames, it is apt to melt the foundation starter as the two have the same melting point. For this reason a mixture of beeswax and some other substance that will reduce the melting point about five degrees should be used in fastening the starters. It also prevents the starter from cracking loose and falling down in winter.

We have tried a good many things and have settled down to spar varnish. Two to three percent of varnish mixed with half turpentine so that it will further mix with the beeswax. This is important.

Note how the three rubber bands in the picture hold the starter firmly against the top bar. On new frames we put the starter in the groove, but on frames which have been used we do not dig the wax out of the groove as these three rubber bands push the foundation up securely enough to the surface to get a good connection. This work is done over a tub containing about two inches of cold water and about an ounce of formaldehyde. The hot wax is cooled by pouring a cup of this cold water down the frames. The use of the wax mixture, melting a few degrees lower than beeswax, and the rubber bands to help fasten the starters to the flat surface, and the rapid cooling with water, all result in saving considerable time.

We use a thermometer in the can of melted wax and run it at a temperature of 190 to 200 degrees F. The wax is melted in a pan and drained through a cloth of fine white gauze as it is added to the wax tube

Burr Combs

During the past ten years we have produced large quantities of chunk

honey and, after carefully observing hundreds of colonies, we find that bees do not commence work at the top of the chunk honey supers, as is generally supposed, but begin at the bottom.

What actually takes place is this. The bees well up and overflow their hive bodies, collecting on top of the bottom bars of the supers where they form clusters in patches about as large as your hand and about as thick. Here they build burr comb. After they get a burr built up about an inch high they climb up and begin work on the starters. These are the brace combs that fasten two or more of the frames of chunk honey together and they are built before the starters in the frames are ever touched. Anyone can see this going on who will take the time to look. It is shown fairly well in the picture.

When these initial burr combs are in line with a starter the comb drawn down from the starter unites with the burr, forming one straight symmetrical comb. But when these initial burr combs are built from one bottom bar to the other, the result is a super with combs connected by burr combs.

After carefully observing how and why these burr combs are built, it is a very simple matter to stop them by merely putting a bottom starter in one frame near the middle of the super. The picture shows how the bees work on this bottom starter. Please note that the bees have drawn out the comb and stored honey at the bottom but have just begun work a little at the top. The bottom starter, ½ inch high and in one frame only, is sufficient to insure a super of good straight comb.

One other trick: we sometimes wish to produce chunk honey in a standard hive body but with summer temperatures of 104 degrees in the shade, as we have often here, a full depth comb of chunk honey will not support its own weight. To offset this we put in a second bottom bar half way up the end bar and use two starters, the result being as if we had two half depth supers, one above the other. With the Jumbo body the result is like two shallow extracting supers, one above the other.

Taking Off the Crop

In locating yards they should be off the hive we generally smoke the bees out of the supers, load them on the truck and go. Two men can work to best advantage, one smoking the bees out and one loading the truck. Speed is the important thing and we pull out as soon as the bees feel a disposition to rob.

In locating yards they should be placed if possible so that you can go from one to the other easily. In

(Continued on Page 347)

Lives of Famous Beekeepers

By Kent L. Pellett

A S the story goes, Aristotle passed a reckless youth. But not wholly reckless. If he was fond of an intemperate good time, he yet had his eyes open and early acquired a liking for plants and animals, and learned to note the nature and structure of things; and he found time to get a knowledge of medicine and surgery from his father, physician to the King of Macedonia.

At eighteen years he went to study under Plato in Athens. The Athens of three and one-half centuries before Christ was by our yardstick a mere village, composed of small farmers and craftsmen, and slaves, yet it was the center of learning and the freest spot of the western world.

Plato instructed his students in the academy while walking about. There was no need for them to remain stationary, for they were not bothered with equipment. Without printing, there were no books except a few rolled manuscripts. There were no microscopes or telescopes, no handy and accurate system of numbers; no geography except a scant mapping of the fringes of the Mediterranean Sea. There was no need of training the pupils to do things with their hands, for slaves did the manual work.

So Plato taught philosophy and mathematics and speculated on the nature of things with the young men gathered around him. He had a leaning toward reform. With fine imagination he painted his Utopia, an ideal state to be governed by philosophers, where all men, and even women, were to have equal opportunities. His urge was for people to take hold of life, to dominate circumstances, instead of being carried away by them.

Young Aristotle, after his arrival at the academy, was soon spending a great deal of money on manuscripts, and made himself known as the librarian. Plato recognized at once the great ability of the youth from Macedonia, and spoke of him as the intellect of the academy. But the relations between the two were not always too cordial. Aristotle was a diligent student, but he cared not at all for Plato's Utopia, and many of the ideas of the master seemed to him but pretty stories and a little Plato's enthusiasm and his imaginative language left him cold. He looked at the world with keen, practical eyes. We must not admire or marvel at anything, said Aristotle. He was content to leave life as it was, with its slavery and restrictions of women, and other narrow Athenian ways. It was all right for Plato to go ahead and make the world bet-

ARISTOTLE

"The history of biology harks back to Aristotle by a road that is straight and clear, but . . . beyond him the road is broken."—D'Arcy Wentworth Thompson, in lecture before Oxford University.

ter, but Aristotle wanted to find out more about it.

In a few years Aristotle had pupils of his own while still under Plato, and it is said that he made contemptuous remarks about the old master's knowledge; whereupon Plato complained that Aristotle was like a colt that kicked its mother. At Plato's death his nephew succeeded him at the academy, and Aristotle left Athens.

He married a princess of a nearby state and took her to live on the Greek island of Lesbos, along the Asiatic coast. For two years he studied the life about him on Lesbos and nearby islands: the mammals, the fishes, the sponges and the shells, starfish in such numbers that they bothered the fishermen, and perhaps swarms of bees busy about their tasks in that sunny spot.

But he thought it necessary to defend his action of spending time in a pursuit so lacking in dignity as that of watching animals. "Doubtless the glory of the heavenly bodies fills us with more delight than we get from the contemplation of these lowly things," he said. "On the other hand, the living creatures are nigh at hand, and of each and all of them we may gain ample and certain knowledge... If a statue please us, shall not the living fill us with delight?..."

In the meantime, Philip, King of Macedonia, dreaming of a world empire, wished to prepare his son, Alexander, to succeed him. He believed that his heir, destined to govern the world, should have a wide knowledge, so he sent for Aristotle to act as his tutor. Thus it happened that at middle age Aristotle left his life as a naturalist to teach a prince who was later to try not only to dominate the world, but to become a god as well. Alexander tolerated Aristotle and they became friends, but the boy preferred taming wild horses to the study of philosophy.

After seven years King Philip was stabbed at a wedding, and Alexander, then twenty, launched his conquest that was to spread blood over the face of the world. Aristotle went back to Athens and set up a school in the Lyceum, a temple to Apollo. Athens, recently conquered by Mace-

donia, was now hostile to Aristotle. fresh from the Macedonian court. But he was able to build a school even in a hostile city in competition with the old school of Plato. Large numbers of students flocked to him. He, too, walked and instructed his students, as had Plato. But, whereas Plato had contented himself with teaching philosophy and mathematics, Aristotle made students use their eyes as well as their heads, and he set them to gathering and systematizing knowledge. He soon had a large library, which he augmented with his own writings. And in the arrangement of this library he evolved the first cataloging system for books.

While Aristotle was busy conducting his lyceum, Alexander crept into Asia and one potentate after another gave way before him. With his hands full of spoils, he could be generous with his teacher: he sent Aristotle four million dollars in gold from mines he had captured. With these funds at his disposal, Aristotle conducted his gathering of zoological facts on a much larger scale. He sent men to scour the neighboring At one time he had a countries. thousand helpers scattered over Greece and western Asia observing the plant and animal life of the different regions and sending specimens home to Athens. With all these specimens, Aristotle soon had the first great zoological garden. Here he and his students could watch the animals and note their peculiarities and habits. Here it was that he had his bees.

With his ensemble of species before him, Aristotle conceived a vast and bold project: he would describe the whole, each species in detail, and determine the relationship existing throughout nature. He set to work with his students, made endless observations, and succeeded magnificently. The science of biology was born.

His manuscripts numbered in the hundreds—not all on biology, for at the same time he was writing on physics and mechanics; founding the science of logic, or true thinking; founding political science through the study of the constitutions of over one hundred and fifty different governments; and discussing the nature of the heavens, the soul, and God. All his works were packed with observations and conjectures, with no pretty trimmings of any kind. One must admire or marvel at nothing, said Aristotle.

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man who was founding biology. He knew nothing of muscles, did not distinguish between arteries and veins, and thought the brain a mere organ for cooling the blood. But his errors were largely on subjects beyond his power to determine; his theories went awry because he did not have all the facts. On the whole, his observations were rigidly accurate, and if modern naturalists have found him at fault on some points, the father of natural history has tripped them on others. Only in recent years many of his statements, long out of repute, have been proven true. Johannes Muller, a German anatomist, wrote a full book about a page of Aristotle, without correcting him once in his observations.

Aristotle devoted to bees but a few pages of his manuscripts, but in this fragment were packed observations that were to serve as the text on bees for many centuries. During that time writers were to accept them almost without question, his absurdities as well as his truths. Here, again, he wrote without eloquence. If the little insects which have stirred hundreds of authors to volumes of fine writing quickened his pulse a beat, he yet held his pen with stiff fingers and told in unvarnished words what he saw.

And, without tools of any kind for handling them, without experiments-he was not apt to think of experiments when he had no toolshe managed to see an astounding number of things. He noted that bees work on but one variety of flowers at a time; that the business of the hive is divided amongst the workers, different duties being allotted to different ones. Of the method of harvest he said: "The bee carries wax and bees' bread round on its legs, but vomits the honey into the cell." He observed the ripening of honey, and noted that the queenbees, "rulers," he called them, "are provided with stings, but they never use them," and he saw cases of foulbrood. It is, he said, indicated among the bees by "a lassitude and in malodorousness of the hive."

The relationship of the trinity of the hive was not clear to him. He was inclined to believe that the drone was of a different species from the workers, of no particular value to hive economy except perhaps to engender more industry in its other members. With the true function of the queen almost in his grasp, he let it escape him. He called queens rulers, and sometimes kings, and yet he observed the large size of their abdomens, and said: "They are called by some the mothers, from an idea that they bear or generate the bees; and, as a proof of this theory of their motherhood, they declare that the brood of the drone appears even

when there is no ruler bee in the hive, but that the (worker) bees do not appear in his absence." And he admits again that the rulers "contribute in some way to the generation of the common bees."

Not knowing just what it was that the queens contributed toward the reproduction of the race, he advanced several theories about its procreation. "Some say that they fetch their young from the flower of the callyntrum; others assert that they bring them from the flower of the reed; others, from the flower of the olive. . . . Others declare that they fetch the brood of the drones from such things as above mentioned, but that the working bees are engendered by the rulers of the hive. . . . Others, again, assert that these insects copulate, and that the drones are male and the bees female." He knew of the brood in the combs, but suggested that the bees carried the pupæ there from the flowers.

He was more definite about the sources of honey and wax. "The bee, then, makes the wax from flowers." And "Honey is distilled from dew, and is deposited chiefly at the risings of the constellations or when a rainbow is in the sky . . . " However, he contradicted himself, for he later told of bees deriving honey from ivy flowers.

But to us, with our conception of breeds, most novel is his enumeration of the varieties of bees. There are two kinds of rulers: "The better kind is red in color; the inferior is black and variegated." Some assume that the red bees were similar to the present day Italians. And of the other hive occupants, "The best kind is the little round mottled insect; another is long, and resembles the anthrena (carpet beetle); a third is black and flat-bellied, and is nicknamed 'the robber'; a fourth kind is the drone, the largest of all, but stingless and inactive." It was difficult, that job of founding a new science.

While Aristotle was busy at his work, events brewed which were to end rudely his investigations. Alexander executed a nephew of Aristotle because he refused to worship Alexander as a god. Aristotle protested, and Alexander intimated that Aristotle's death might follow. But if he was embroiled with Alexander, Athens was no less hostile to him. He had never ceased to defend the Macedonian king to the Athenians, and they were angered when Alexander raised a statue of him in the city. They buzzed about him like cross bees, but Aristotle serenely continued his work.

Then Alexander, mad with his own success, got drunk in Babylon, contracted a fever and died. Athens immediately ousted the Macedonian

party from power and Aristotle fled for his life. Within a few months after his flight from Athens he, too, died, a lonely man, scarcely past middle age.

There arose no leader of the power of Alexander the Great, and the empire he had founded soon crumbled to pieces and was gone. Likewise, among his students at the Lyceum, there was no man of Aristotle's calibre to take his place, and in fifty years it had dwindled into insignificance. His followers found too arduous the task of endless observation and discovery and turned back again to the realm of the imagination. Thus quickly was obliterated, apparently forever, the work of two great leaders, each of whom had in his own way founded a world empire. And truly the work of Alexander had vanished. But after almost twenty centuries, one-fifth the duration of all human history, men would once more turn their minds to biology, and Aristotle again would be a living force.

The Management and Handling of Chunk Honey

(Continued from Page 345)

loading a ton truck with chunk honey we generally visit two or three yards.

Generally we start out with a load of empty supers from which the honey was cut out the day before. These supers go back to any yard that can use them, but we do not take off honey from the same yards we put the supers on, until the next day at least, as these wet supers excite the bees more than anything I know of. We usually go to one yard, unload the wet supers, move on to another, take on a load of honey, and hurry home to get unloaded in time for dinner. In the afternoon we go to another yard and bring in another load of honey.

The extracted honey is produced in the same yards as the chunk honey and the loads are often part extracted and part chunk honey. We have about fifty bee escape boards but seldom use them unless robbing is bad.

New Honey Medicine

"Honeydine" is the name of a new product recently introduced to the drug trade by C. C. Baker, of Ellensburg, Washington. It is a combination of honey, iodine and other drugs for the purpose of treating hay fever, catarrh, coughs and colds. Reports indicate that it has been received kindly by the trade and that the prospect is for a greatly increased demand as the public becomes acquainted with the new product.



WELL, I have had a new experi-ence, equal to all the happy dreams of a visionary idealist. A ride in the air! All my life I have wanted to fly! In those far off lazy days when, as a little girl, I lay on the grass watching the fleecy white clouds of mid-summer float over, I dreamed of being a fairy sprite and riding upon them. Now, I am no fairy sprite and I did not ride upon a cloud, but I have been up, up, up to them and it was really the most gloriously exhilerating experience of my entire life.

It all came about in this way. One day, two summers ago, among the regular quota of apiary-scouting cars that are habitually rolling up our drive came one that did not bear the general "ear marks" of the ordinary beekeeping fraternity, though its two occupants proved to be indirectly interested in bees. So while John entertained the gentleman-contingent I enjoyed a sociable chat with the pretty little wife. They were on the last stretch of their honeymoon, were going to housekeeping in a tiny flat in our nearby metropolis. They were both intensely interested in out-ofdoor things and sometime when her "John" made his pile they wanted to buy a little farm, have flowers and a garden, and raise hens and babies and bees.

She was so adorable that I quite fell in love with her. It seemed that her "John" was no ordinary man either. He was a flyer by profession and had done all sorts of splendid things in his chosen work. We had a wonderful visit and they stayed for supper, a honey supper, of course, out in my bit of garden. When they had gone John and I both remarked again that one of the very greatest charms of Beekeeping is the wonderfully interesting people we meet.

Once or twice we had cards from them, then a few days ago our "flyer" came again, this time alone. Dora was at home with their new month-

To Forget Care, Go Up in the Air

By Betty Bee

old son, he told us joyously. They had moved, were living in the suberbs, had a bit of garden and some flowers, a flock of hens, and that very morning a swarm of bees had clustered on one of his little cherry trees. Would we sell him a hive, or perhaps two, or could we perhaps spare him a colony to keep his adopted bees com-

I took my John aside for a bit of wifely suggestion. I am not mercenary, I hope; but if there was to be any exchange of this world's goods why not exchange bees or beehives for a trip into the heavens? Perhaps he could manage to take all of our family or at least some of us? It seemed to be a perfectly logical thing to do and our guest readily acquiesced. So it was arranged and before the week was out, we had all had our ride, seen the lovely little mother and the new baby, interviewed the hens and garden and seen the new swarm and its neighbor from our own apiary.

How does it feel to fly? Now in reality I am not known as a woman of few words but positively there are not words fine enough or big enough to describe it. Flying is simply indescribable. It is wonderful beyond expression. After you get over that first sort of creepy feeling as if your soul was being parted from your body, and you get used to the idea of having nothing but honest-togoodness fresh air between you and dear old Mother Earth, when you get your "sea legs," as it were, and your heart and other inner fixtures sort of quit fluttering, then your soul is thrilled beyond expression at the marvelous magnificence of it all.

It sort of seems natural, as though sometime back, back farther than your mind can recall, you had been used to flying. Then you look down, down, and begin to realize how truly beautiful the world really is. Each miniature house and barn, each little knoll and valley is a picture in itself. How delicately they glimmer and shine in the clear air. Every road and street becomes a dainty silvered line, each rivulet and pool a veritable lake of exquisite coloring. The entire stretch of landscape shines an exquisite picture of peace, and quiet, and rest. All worldly cares and tribulations seem petty, trivial. You stop fretting because Junior tore his new Sunday trousers climbing a barbed-wire fence after a garter snake. You quit worrying because Dick's algebra grade is below standard, that John's honey crop is not all extracted. Literally and figuratively speaking you rise above all

the petty things of life. To you comes a new vision. Not because you are frightened, not because Eternity may at any moment be near, not because of the strangeness, but because your innermost Soul has caught a vision of a new sphere, the very portals of Heaven are opened to you. You have sensed a glimpse of a World Beyond where "Eye hath not seen, nor ear heard, neither have entered into the heart of man the things which God hath prepared for them that love Him."

In flying you catch this tiny vision too deep for words, too vast for thought, but something of the Infinite Splendor which in our inner souls we have all our lives been craving, a spiritual uplift of indescribable Love and Peace. I cannot believe any service in the greatest of Cathedrals could so touch one's innermost Soul as an experience of this sort. Truly, "The Heavens declare the glory of God and the Firmament showeth His handiwork." But I did not intend to preach a sermon. If you have flown, then you understand.

Now about Honey I believe we should be encouraged. In our community, which is no different from others, while the demand for honey is not as brisk as it has sometimes been, still people who never used it are beginning to eat it now and I have telephone calls about Honey Cookery from women who never thought of its merits before. It is this continually keeping Honey and its many excellent uses before the public that counts, and if each of us Beekeepers and Beekeepers-in-Law patiently and persistently keep grinding away on the splendid qualities of honey, its remarkable healthfulness, its delicacy, its purity, Honey is bound to come into its own as a national sweet.

Honey Charlotte Russe-If you are entertaining, one of these warm afternoons, try Honey Charlotte Russe. It is so easily made and so universally poplar. Whip one quart of cream until very light, then add one-half cup of honey of delicate flavor and blend well. Line a large dish or your small service dishes with lady fingers or macaroons, fill with the honey and cream mixture. Chill thoroughly and serve with a little honey on top or a "rose" of crystalized honey as decoration. In using the "rose," color the crystalized honey a delicate pink with fruit coloring and decorate with regulation cake decorator.

Honey Mousse-This is another of our family's pet "society dishes." You will like it also. Beat four eggs lightly and slowly pour over them one cup of hot, delicately flavored honey. Cook in double boiler until mixture thickens. Cool, and then fold into it one pint of cream which has been

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whipped. Line a suitable mold with lady-fingers or macaroons, pour in the mixture, pack in salt and ice and let stand three to four hours to freeze. Serve with drizzle of honey or the crystalized "Honey Rose."

Honey Ice Cream-Heat one pint of milk in a double boiler. Beat together one cup of light honey and the yolks of six eggs, add the hot milk, place mixture in the double boiler and cook until it thickens. this cools, add one pint cream, and freeze as with ordinary ice cream. This is delicious, and the first part can be prepared as one washes the breakfast or luncheon dishes, and then frozen a few minutes before the time of serving. It is especially delicious served with ripe raspberries or bananas.

Raspberry Honey Pudding

2 tablespoons of 2 cups fine, ripe gelatine red raspberries 1/4 cup cold water 1/2 lemon 11/2 cups milk 1 cup whipped ½ cup honey cream

Soak the gelatine in cold water until soft. Heat the milk and stir in the gelatine, and continue stirring until gelatine is dissolved. Add the honey, raspberries and the lemon juice. Set in a cool place. When it begins to thicken fold in the whipped cream. Chill and serve with a bit of whipped cream sweetened with honey.

Honey Lemon Pie-Are your men folk fond of pie? If so, do try this Honey Lemon Pie and you will find its appearance greeted with masculine enthusiasm. With eight tablespoons flour blend until smooth 1/2 cup cold water. Then add 34 cup honey and the grated rind of one lemon. Slowly add to this one cup boiling water, stirring constantly. Cook in double boiler until thick. Then stir in the juice of one lemon, slowly add part of this cooked mixture to the well-beaten yolks of two eggs, stirring constantly. Return to boiler and heat until egg is well cooked. Then add one tablespoon butter. Pour this filling into a previously baked pie crust and cover with a meringue made from the two egg whites, slightly sweetened. Brown the meringue in the oven. Since I rather pride myself on never using commercial sugar in any form, I do not sweeten the meringue but when serving the pie, drizzle upon each piece a little honey.

Pollen Carried by Queenless Bees

A contributor to "Der Deutsche Imker" (Czechoslovakia, February), in the course of an article on restriction of the brood nest-a manipulation much practiced in central Europe with certain types of hiveremarks that a colony that feels itself queenless will carry in pollen

instead of nectar, adding that he states this from experience. (He is pointing out the unwisdom of too drastic a restriction of the queen's laying powers, which would have this result.) One wonders if this supposed change in the bees' foraging habits may not be partly an illusion, due to the accumulation in the hive of pollen when there are few or no larvæ to eat it up; but the writer is a careful observer, and there may possibly be here a fact worth attention by students of bee "psychology." A. D. Betts.

(We believe Miss Betts is correct in surmising that the change in the bees' habits is an illusion. If we watch colonies carefully at the entrance we will almost always be able to discover the queenless ones by the very limited amount of pollen that they bring in. But, since there s no consumption of pollen where there is no brood, the small amount of pollen brought in by the bees accumulates in the combs, so that one who does not observe them at the entrance is likely to suppose that they bring in more pollen than queenright hives.-Editor.)

For Those Who Learn by Experience

I recently put thirty wet supers on five hives. I first put an empty rim next to the brood nest. In these the bees seemed to divide, cluster, and when caught by a cold snap of November 1, failed to unite below and the result was a heavy loss of

Where I did not put on empty rims, the bees seemed to form one long cluster from bottom to top, and I believe they are passing honey up from below.

I seem unable to work them down below the capped honey in the bottom body. Up to now, I see but one way to get matters corrected, and that would be by putting the brood nest on top and coaxing the bees up. One more experience.

J. H. Sturdevant, Nebraska.

(The title you give to your article is very appropriate. We made the same mistake once, of putting too many supers on colonies, to be cleaned.

The method you suggest, of putting the hive body on top and driving the bees up to it, is probably the best method to remedy the evil. Do it before it gets too cool. In future, do not give so many supers, to clean, to a colony at one time.

As long as the queen does not change location, it is fairly easy to mend matters, but when she leaves the brood nest the difficulty is much increased .- Editor.)



CARNIOLANS

Gentle, Prolific, Wonderful Workers

Gentle—can be handled most of the time without a veil. Wonderful workers; aver-age surplus 1927 was 180 pounds per colony.

age surplus 1927 was 180 pounds per colony. Many reports from customers better than this. Build very white combs—fine for comb honey production.

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Untested	Queens,	six	6.60
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By careful selection during all these years have succeeded in producing a strain of aree-banded, leather-colored Italian bees, three-banded. known as MOORE'S STRAIN OF ITALIANS, which has won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. A. K. Whidden, San Jacinto, Cal., says: "In 1913, 80 per cent of the bees in this district died of European foulbrood. I had an apiary of 60 colonies headed by daughters of your queens in which I did not lose a colony, and in 1914 they made 360 pounds per colony.

"In 1917 I bought 12 queens of you and introduced them to diseased colonies. Four of them became too weak to recover, and they all got rapidly worse until it looked impossible for any of them to recover. In eight of them, as soon as the young bees from your queens began to hatch, the disease began to disappear. They cleaned up ease began to disappear. and stayed clean."

Untested queens, \$1.00; 6, \$5.00; 12, \$9.00. Select untested, \$1.25; 6, \$6.00; 12, \$11.00. Safe arrival and satisfaction guar-anteed. Circular free.

J. P. MOORE, Morgan, Kentucky

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

CLIPPING QUEENS' WINGS

CLIPPING QUEENS' WINGS

I. Can I get a scissors with curved points to clip queen's wing while running on the comb, and what is the cost? It seems difficult for me to hold them without injury.

2. Will clipping wings save the loss of swarms? I have lost over half; some will no more than settle, not for a minute; some swarms for an hour or two. Have had several fly off just as I was ready, and did not get a chance to hive them. Have had a colony to swarm out one day that I lost; the next day it swarmed again, but I got that.

3. Does the sun affect the hives? A are shaded, but the sun hits them about o'clock.

MISSISSIPPI.

Answer .-- 1. We do not use scissors with a curved point to clip the queen. Any pair of scissors will do. Let me here give Dr. Miller's description of clipping a queen:

"I want to catch the queen by the thorax or just back of the thorax, and if she is in motion, by the time I reach for the thorax it will have passed along out of reach. So I make a reach more as if attempting to catch her by the head, and the movement she makes is likely to bring my thumb and finger on each side of her thorax, and in that position she is held firmly on the comb. There is no danger of hurting her by giving a pretty hard squeeze on the thorax, and indeed there is not so very much danger if the hold is further back and the abdomen gets a little squeezed.

"Then the thumb and finger are slid off the thorax, at the same time pressed together, and this gives me a grip on the wings, when she is lifted from the combs fairly caught. All this is done with the right hand. She is now lifted to the left hand and held between the thumb and finger. back up, head and thorax between thumb and finger, head pointing to the left, ready to clip. Then one blade of the scissors is slipped under the two wings of one side, and they are cut off as short as they can conveniently be clipped."

Another beekeeper places the queen down on a smooth surface, catching her by one of the wings. Then, while she is twisting around, trying to escape, the wing is cut. It is best to clip the wings of a queen on one side only, as it makes her easier to detect on the combs when hunting for her.

2. Of course, if the wings are clipped, the bees have to rear young queens in order to get away. Those instances where the bees hardly settled at all were probably with young queens, as the young queens are more restless.

3. It is quite important to have the hives in the shade, as was stated in the editorials of the June number.

Clipping does not injure queens in any way, if it is done properly.

LATE APPEARANCE OF NEW QUEEN AFTER SWARM HAS ISSUED

This is my first year with bees. I started with an eight-frame hive and bees purchased locally. Queen with clipped wings. On June 7 a swarm issued which I hived on the old location in a new body containing full sheets of foundation. The body containing the brood I moved a few feet away and shook and brushed every frame except one in front of the new hive on the old location.

I intended to cut off all queen-cells except one, but as this was my first swarm

cept one, but as this was my first swarm

I became somewhat confused and cut every queen-cell out. I discovered what I had done and had an experienced beekeeper who lives near go through the hive with me, and he pronounced every queen-cell gone and told me to purchase a queen at once.

While waiting to obtain a queen I again went through the hive on June 22 and discovered a nice queen-cell capped over. I again called in my experienced friend and he pronounced it a very nice cell. On June 26 we again went through the hive and found the cell empty, but did not find the queen. On going through the hive on July 2 we found a nice queen.

What I want to know is where this queen came from, as I understand it is impossible for the bees to raise a queen except from eggs a few days old.

Answer.—Queen-cells built by the bees,

Answer .- Queen-cells built by the bees, on young brood, hatch out in ten to fifteen days after the removal of the queen. Since your bees swarmed on the seventh, and there must have been some fresh-laid eggs in the cells, it is not astonishing that they should have a queen-cell ready to hatch out on the twenty-second, or fifteen days later.

Usually, however, the first queen hatches out in ten days after the removal of the old

It is a mistake to brush out all the young bees of a hive that has swarmed, as it leaves it rather short of bees to take care of the brood. It is probably for that reason that your young queen was slow in emerg-It is a question whether she will be as good as one reared in a fuller colony.

SWARMING WITH CLIPPED QUEEN

I want to ask a question, and that is: I have all my queens' wings clipped, and in case they should swarm and go back into their hives, what should I do to them in case I don't want any increase? Can you tell me the simplest method to keep them from swarming again? ILLINOIS.

Answer.-This question is not very easy to answer, because what the bees will do depends a great deal upon the conditions in which they find themselves. We have seen a colony, with a clipped queen, rear a young queen and swarm with her. have known them to kill the old queen that could not fly and wait for a young queen to be reared to try swarming again.

If I owned the colony that tried to swarm with a clipped queen, I would either make a division out of it or give it so much room that the bees would be satisfied not to try to swarm again. But I would first either kill the old queen or destroy the queen-cells. Another way to do is to remove the colony to the spot occupied by a weak one, putting the weak one in its place. If there is a honey crop, there will be no fighting.

KILLING THE QUEEN TO PREVENT SECOND SWARMS

I wish to know if it is just as good a plan to kill the queen in a swarm and have the bees return to the hive as it is to cut out the queen-cells, which is considerable work. This year so far I have been killing the queen and the bees have returned and seem to work O. K., and it seems much the easier way; it suits me better anyhow. My bees always swarm on small bushes, as there is no very tall timber here. One swarm has gone out three times and returned and is doing good work in the supers.

Answer .- Killing the queen will compel the bees to return home at that time. But the fir that c about the we amoun have voung. kill he old ar supply the pi more is kill entirel

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it often happens that the bees swarm with the first young queen that hatches, and, in that case, the swarming is only put off about a week. If there are several queencells, as usual, it is even possible to have more than one swarm. It all depends upon the weather, the strength of the colony, the amount of ventilation and room that they have in the hive. If your queen is a young, valuable queen, it is undesirable to kill her. But if she is more than a year old and not particularly desirable, it will supply the colony with a young queen at the proper time. Should the weather be more or less disagreeable when the queen is killed, it may put an end to swarming

REDUCING HIVES AT FLOW

1. Is it all O. K. to leave the second brood body on after the honeyflow starts, placing the comb honey supers on top, or should they be put in between the brood bodies?

2. Is sainfoin an annual plant? Is it like red clover or other clover? When should it be seeded?
3. Who sells the book, "The Spirit of the Hive?"

Answer .- 1. If your two brood bodies are not entirely full of brood, you might do as Dr. Miller did-put all the best combs of brood in one body and remove the other, using what remains in some weak colonies. The bees being crowded on one story will go more readily into the supers. If you have more brood than needed, then it will be better to put the supers on top. You may put the supers between the two stories for a little while, but if you leave them thus the bees will be likely to put some pollen in the sections, owing to some of the brood being above.

2. Sainfoin is a perennial. It is much like the clovers. Sow it as you would sow

clover.
3. "The Spirit of the Hive," by Dallas Lore Sharp, is published by Harper Brothers, New York City. We keep it for sale. The price is \$2.50, postpaid.

SECURING QUEENS FROM RUSSIA

SECURING QUEENS FROM RUSSIA

1. I would like to have a little information on how I could get in touch with a reliable queen breeder in Russia, that is a Caucasian beekeeper.

2. Of course, the queen would have to be ordered through James I. Hambleton at Washington, D. C., I suppose.

3. When would you think it to be best to send for her so as to have her here at the best time?

4. I believe I read in the Dadant System of Beekeeping that you imported some queens from Italy. What would be your guess as to how much the cost of the queen plus all other charges amount to?

I would like to have a pure Caucasian queen, as I think they would give me better results than if bought here in the U. S.

IOWA.

Answer.—1. Professor A. N. Gorbatschev,

Answer .- 1. Professor A. N. Gorbatschev, Department of Agriculture, Tiflis, Caucasus, is the best man to furnish Caucasian queens or to give the address of reliable breeders.

2. Yes, the queen would have to come through the Bureau of Entomology, in which Mr. James I. Hambleton is chief apiculturist. Mr. Hambleton is a very nice man and always does all he can to accommodate beekeepers.

3. I believe the best time to order queens from that distance is early in the summer. as it will take quite a while to get them delivered here.

4. Yes, we used to import hundreds of queens from Italy. The cost of the queens is not great, but the transportation charges high unless you have them sent by mail, which is not a very good way. However, success may be achieved by mail. I



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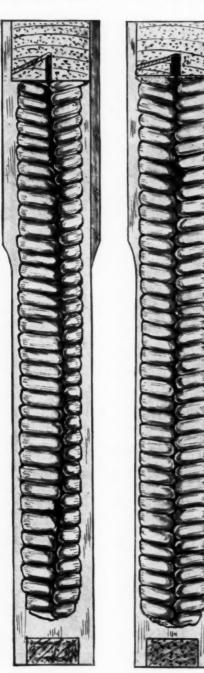
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John T. Knight, Mgr.

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Cross section of comb wired with 4 horizontal wires—perfect for brood because of regular-depth cells,

Just Notice That--

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hold up best in the extractor and under any hard usage;

and that — Combs wired with

4 Horizontal Wires

have evenest comb surface and midrib at the center always.

Three-ply foundation, wired with 4 horizontal wires, in Root new frames with their notched corners at both top and bottom, make the best of all combs.

do not think the total cost in lots of ten queens would be over \$5 each, perhaps much less.

Easy Way to Remove Pollen from Brood Combs

I notice frequent inquiries through the American Bee Journal of some easy or practical method of removing pollen from brood combs. I cannot say that I have the best way, but I find a more or less effective way is to give these combs, nearly empty of all honey, to natural swarms. swarm will use it right up in brood rearing; the queen will lay in the cells thus emptied and then the bees use these cells for incoming honey. If this method is not practical, and swarming should be prevented as far as practical, then try this: Place the combs free of honey in an ice box or refrigerator. The pollen grains shrink or separate from each other, the honey with which the pollen has been moistened will candy or granulate, and all together can be shaken out by hand, using care to not break the comb, as in this stage the wax is easily broken.

A. H. Pering, Florida.

More About Laying Workers

By E. M. Cole

One thing I think I never told you is that, in the dozens of queenless colonies I have had, I never had even one develop laying workers except in the flush of the season. If, as some think, by intense desire for brood or, as others think, by selecting a young bee and feeding it as a queen, laying workers are developed, we would have them early in the season or late in the fall, when bees are in desperate need of a queen.

If bees knew how to develop laying workers, surely we would find them in early spring or fall. That is one reason I think they are accidental as far as bees are concerned and are developed only in the flush of the season, about swarming time, when most of the brood is being capped over. Then the nurse bees, having an oversupply of brood food, overfeed some of the larvæ enough to develop them into laying workers.

Utah Honey for the "Honeys" of the Nation!

G. Hoyt, of New York City, whose letterhead proclaims that he is a purveyor of "beautifying cosmetics—French process," wants to buy Utah honey in carload lots.

That is the message he conveyed in a letter received recently by Harden Bennion, state commissioner of agriculture. G. P.

ar-depth cells. cells.

THE A. I. ROOT COMPANY

MEDINA, OHIO

352

American Bee Journal

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MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

Nebraska Has New Bee Law

The recent session of the Nebraska Legislature passed a bee inspection law and provided funds for carrying on the work. This state has had a makeshift law for several years but it was useless as it provided no funds for enforcing it. This year the Nebraska Honey Producers Association was the main motive force behind the efforts for new legislation. The main cogs in the work were Robert H. Walstrom, Omaha, W. R. Perry, Omaha, and Wayland S. Case of Gordon.

The budget bill carried an appropriation of \$1,000 to carry on the work for this year until the regular funds are available. After this year the work will be carried by funds made available through a direct colony tax. The enforcement of the law rests with the state Department

of Agriculture. The bill passed the House by a vote of 73 to 12. One representative voted for the bill because: "I have been stung. I am therefore in favor of inspection." In the Senate, where it passed by a 26 to 2 vote, one senator voted against it saying: "As I know of no way to inspect the bees that fly at large, I vote 'no'."

The law gives the inspector access to any property where bees are kept and gives the owner ten days in which to clean up. All bees kept in non-movable frame hives are declared a public nuisance and are burned without remuneration. It is unlawful to bring into the state any bees, queens, honey or used bee equipment unless there is plainly shown a certificate of inspection or a certificate of health issued by the proper official of the state in which the shipment originated. Nebraska has the right to reinspect any incoming shipments if thought necessary. It is unlawful for any person to sell or offer for sale any bees, queens or used bee equipment until the same has been inspected by the state and a certificate of health issued.

Don B. Whelan.

Hillman, at Utah Meeting, Says Prospects Good

Honey conditions in Utah are splendid, says D. H. Hillman, state apiarist, when the Beekeepers' Association of Utah County met here recently to view the honey and bee outlook for the coming season.

"Honey organizations help the beekeeper by giving him the chance to buy supplies cooperatively," declared A. W. Anderson, field director of the Mountain States Honey Producers' Association, the principal speaker. "Honey organizations also help the beekeeper," he said, "by protecting and building up the local markets."

Farm co-operatives of the northwest and California are making use of President Hoover's views, according to Mr. Anderson, and with the drafting of the farm relief bill, the co-operative organizations will in all probability receive some financial

The contract of the Superior Honey Company, of Ogden, to furnish foundation, was accepted by the local organization, while cans and containers will be ordered from the Mountain States Company. It is expected that an entire carload of cans and containers will be shipped to Provo.

Members of the Beekeepers' Association of Utah County expressed themselves in favor of making an excursion to the Uintah basin district to attend the industrial convention in the near future at Fort Duchesne. A. W. B. Kjosness, general manager of the Mountain States Honey Producers' Association, will be the principal speaker. G. P.

Arkansas Valley Picnic

The Arkansas Valley Beekeepers Association of Kansas held a very enjoyable picnic at the High school building at Nickerson, May 25th, fifty beekeepers and their families being present. Dinner was served cafeteria style, features being honey ice cream, honey cookies, etc. Dr. R. Parker, of Manhattan, spoke on summer management of bees, outlining three ways of managing bees to get a surplus of honey.

- 1. Preventative measures to keep bees from swarming.
- 2. Remedial measures.
- 3. Control measures.

Speaking particularly along the line of Preventative measures, suggesting an apiarist should go through his colonies once a week to know how his bees are doing, paying attention to the vigor of the queen, to the detection of disease, to forestall swarming. If these things are done consistently there will not be much use of Remedial measures. Control measures in the manipulating of hives, principally. He also answered numerous questions that usually "FORMALDEHYDE U. S. P.—used for effective fumigation of Bee Hives. Write for information and prices. In-structions furnished."

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Reared 350 feet from the postoffice. Your Reared 350 feet from the postoffice. Your orders on the desk in 20 minutes from the train. Saves a day in and day out by R. F. D. clerks. Select and guaranteed purely mated. Why buy hybrids? See list. June and May, \$1.25; 12, \$13.00. June 1, \$1.00; 6, \$5.75; 12, \$11.50; 45, \$45.00; 100, \$85.00. Select tested, \$2.00; virgins, 50c. No disease. Safe delivery and satisfaction guaranteed.

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e have chosen the best queens we can t for this offer—Good only for summer 1929. Send in Subscription early to get queens during the honeyflows.

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TEN QUEENS

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Less than ten, 75c each

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Queens --- THRIFTY --- Queens

The kind that will fill your hives with the big, bright, hustling kind the balance of the

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Our queens will satisfy you or your money cheerfully refunded.

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QUEENS! QUEENS!

Palmetto three-band Italians reared from imported stock. Good as the best, better than the rest. My prices are in line with the price of honey. Booking orders now for June, July and August delivery at following prices: 50c each; half dozen, \$2.80; dozen, \$5.40; twenty to one hundred, 40c each.

C. G. ELLISON. BELTON, S. C.

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Safe arrival and satisfaction guaranteed.

Select Young Laying Queens, 75c eahc; six to fourteen, 70c each; fifteen or more, 65c each.

Write for prices on large quantities

Package bees for increase, 2 lbs. with young laying queen, \$2.50; 3 lbs., \$3.50. Express or mail shipment.

1000 colonies and 1200 nuclei to draw from. Seventeen years' experience as extensive shippers

You will be pleased with the quality of bees we supply.

W. D. ACHORD

Fitzpatrick, Ala.

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with the three-speed drive, is the only radial extractor made which gives the operator full control of the speed at all times.

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New Westminster, British Columbia

Bright Italian Bees and Queens

Queens-GOLDEN-Queens

The kind you'll be glad you bought.

They are properly raised; their progeny are gentle; pleasing to look at: a pleasure to handle; best of honey producers; and they winter well.

Not a dissatisfied customer One select untested queen ____ \$1.00 Two to nine ... Ten and over Package bees shipped promptly. Prices and testimonials furnished

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Seventeen years' experience with bees. Twelve years a queen breeder

THREE-BANDED ITALIANS

Select untested, one grade only 1-99 each, \$0.75 100 or more per hundred, 70.00 Select tested each, 1.25 We guarantee safe arrival and satisfaction in U. S. and Canada.

MIDDLE TENNESSEE APIARIES

Leo C. Parks, Mgr. SPRING HILL, TENNESSEE come up at such a meeting. His talk was very much appreciated by old and young beekeepers.

The President, Mr. Shepherd of Wichita, called on each member to give his way of doing things about the apiary, which was very interesting. An exchange of ideas is always instructive in any occupation.

J. N. Farley of Hutchinson, President of the State Horticultural Society, spoke on Kinds of Trees to Plant that were ornamental, useful to farmers and good for the bees. A solo by a young lady and a duet by two of the beekeepers' wives were enjoyed by all. At 3:00 p. m. the meeting adjourned to the nearby apiary of Mr. Nininger. Mr. Nininger answered a variety of questions on bees, honey, flowers, etc. A very good meeting.

40th Annual Convention of the California Association

The 40th Annual Convention of the California Beekeepers Association will be at San Diego, December 11, 12 and 13, 1929. Mr. Fred Hanson is chairman of a large committee on arrangements composed of beekeepers, civic club members, Chamber of Commerce and other organizations. We may expect the finest convention in our history.

Ohio Summer Meeting

The Ohio Beekeepers will hold their summer meeting in conjunction with the Michigan Beekeepers' tour, August 5, 6 and 7, at the A. I. Root Company plant, Medina, Ohio. Arrangements are being made for an unusually attractive program. W. E. Dunham, Secretary.

Dane County Beekeepers' Association

About eighty beekeepers gathered at the home of E. M. Johnson at Blue Mounds, Wis., on June 9 to hold a picnic in honor of Mr. Johnson, who has been associated with beekeeping for 74 of of his 85 years. The Dane County Association held its first annual picnic in connection with the event.

The principal speakers were James Gwin, C. D. Adams, Prof. H. F. Wilson, J. D. Millar of Dunn county, and Mrs. C. A. Wood, South Wayne, and Anton Ruste, Mt. Horeb, president of the Association.

Most of the speakers had something nice to say about Mr. Johnson and his influence on the beekeeping of his section. An enlarged picture of Mr. Johnson is to be placed in the Miller Memorial Library at Madison.

Mr. Johnson has been in beekeeping since 1855, beginning at 11 years of age by catching a stray swarm of bees which a neighbor helped him put in a hive. He came to Blue

Mounds from Ohio, bringing an apiary of 100 colonies with him which was increased as time went on. At the age of 85, Mr. Johnson continues to keep bees as his sole means of support.

Lafayette County (Wis.) Association Meets at Darlington

C. D. Adams was the principal speaker. Plans were perfected for the area clean-up for which the County Board voted a sum of money last fall.

Wisconsin's Summer Chautauqua

Arrangements are being made for a summer chautauqua in the western part of Wisconsin at LaCrosse, July 14, 15 and 16, at the special invitation of the La Crosse Chamber of Commerce. More definite arrangements will be announced later.

Father and Son Given Degrees

E. F. Phillips, professor of apiculture at the College of Agriculture at Cornell, recently received from Allegheny College the honorary degree of Doctor of Science, and his oldest son, E. F. Phillips, Jr., received the degree of Bachelor of Arts.

Professor Phillips received his bachelor's degree at Allegheny College 30 years ago, an occasion also marked by the granting to his father, the late T. F. Phillips, of the honorary degree of Doctor of Divinity.

Dane County (Wis.) Association in Meeting at Madison Elects Anton Ruste as President

Dane County Beekeepers met at Madison, Wis., May 1. Anton Ruste of Mt. Horeb was elected president, Samuel Post, vice-president, and G-R. Ranum of Mt. Horeb, secretarytreasurer.

James Gwin, of the department of markets, gave a most interesting talk on honey production. In connection with a representative of the department of agriculture, Mr. Gwin is at present determining the cost of producing honey. He suggests elimination of unnecessary purchases, greater efficiency through a smaller number of colonies, and the curtailment of winter loss through proper protection.

Clark County, Wisconsin, Meets at Neillsville

Twenty-nine Clark county beekeepers met at Neillsville to organize the Clark County Beekeepers' Association. Mr. F. E. Greeler of Granton was elected president and Mr. William Lowry, also of Granton, was elected secretary and treasurer. C. D. Adams and James Gwin were on hand to help with their problems.

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A Young Lady and Her Bees

By J. B. Dillon

Sages have informed us time and time again that we should find pleasure in our work if we hope to make good. Miss Rosabelle Rauchfuss, daughter of Herman Rauchfuss, of Denver, who supervises the work of her father's apiary at 3100 South Acoma street, Denver, Colorado, finds pleasure in her work. She says:

"It isn't really work-it's too fascinating. Bee raising is one of the most delightful occupations imaginable. Bees are far ahead of us humans. They have known the secrets of mass production, conservation and business management for centuries. We of the human race are just now catching up with them."

Miss Rauchfuss then explained her ways and means of caring for the bees; the ways and means of how the bees take care of themselves. According to Miss Rauchfuss, if we go near the bees eating a banana or having too much perfume on us, we are almost sure to get stung. They abhor tobacco smoke and alcohol. Therefore she might have added: "Bees do not smoke, drink, or swear; hence they are our model boys and girls."

Some of us may smile and say that it's all right for Miss Rauchfuss to say "it isn't work," but we choose to differ; yet how much nicer it is to find pleasure in our work, because we know that there are myriads of folks who find pleasure in buying our honey.

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Cold Weather Swarm

I found a swarm of bees on Saturday, the seventeenth of November, last year, while hunting rabbits. The bees had swarmed on a wild plum tree in the early fall and had made six combs there about ten by fourteen inches, one of them being built in with some of the branches; the others fastened only to a small limb about an inch in size. They had but a little honey, but the colony was quite large and had been exposed to several cold winds, some real downpours, and snow storms.

With the help of a friend, I took the colony off, roped up in burlap, carried them about three-quarters of a mile and put them, bees and all, in a small hive with a jar of sugar syrup in the middle, covered them good and warm and left them until the third of December, a warm day, when I opened them and found them at home and very happy. They had clustered on the combs and the jar of sugar and, to all appearances, seemed to be thankful for the comforts of a hive.

H. M. Leach, Ohio.



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Crop and Market Report

Compiled by M. G. Dadant

For our July Crop and Market Report, for the American Bee Journal, we asked the crop reporters to answer the following questions:

- 1. Honey crop so far.
- Prospects for summer crop as compared to last year.
- 3. At what prices are early honeys selling?

CROP SO FAR

Naturally, there has been no crop in the north half of the country, except that in some sections of the plains states, noticeably the two Dakotas and in Colorado and some other sections of the mountainous area, there has been a fairly good flow from dandelion. In fact, in many instances, honey has been stored in the supers from this source.

Maryland and the Virginias report a good early flow from tulip probably equal to last year, but prospects for the sourwood hardly as good as in 1928. In the southeast, Georgia reports about the equal of last year's flow, with like prospects for the balance of the year, and Florida, although not having a crop failure, has had very little honey and is anticipating a very light crop this year. The Apalachicola region seems to be better.

In Mississippi and Alabama, as well as Louisiana, the early flows have been very disappointing. Prospects were exceedingly good, bees in excellent shape, but the weather has been all against any gathering of honey, rainy and cool. The result is there has been very little honey stored in any of these states and, in many instances, much feeding had to be done. In southern Alabama and Mississippi, the prospects for the balance of the year are not flattering, but in the sweet clover sections of the north, there seems to be somewhat of a possibility that a fair crop will yet be harvested although the crop cannot be in excess of last year. Louisiana is expecting less than last year from the late flows.

In east Texas, the conditions have been deplorable up to recently and the heavy rains have cut off the flow and bees have been starving instead of gathering a nice crop. South Texas has done fairly well, although not as well as last year. The New Mexico early crop has been light, and Arizona has not gathered as much as last year. In California the results have been acutely disappoint-

In California the results have been acutely disappointing. The early orange flows will not anywhere equal the 1928 crop, owing to the unfavorable weather, and prospects for sage are rapidly diminishing on account of the drought.

Reports from Porto Rico are to the effect that there will not be a normal crop of honey there. All in all, the early crops harvested of honey have been very disappointing except, perhaps, in some sections of Georgia. In California, especially, and in Louisiana and Alabama have the crops been extremely disappointing. California bees have in many instances starved where proper pre-

cautions for feeding were not taken by the beekeeper. PROSPECTS FOR SUMMER CROP

As previously reported above, the prospects for the southeast are not in excess of last year and perhaps will be lighter. This applies also throughout the South, including Texas, New Mexico and Arizona, where undoubtedly the complete crop will not be any better than it was in 1928. California is similarly situated, with perhaps a total crop for the year slightly less than in 1928, which approached a crop failure.

Although reported in our last issue that there seemed imminent a heavy crop in all of the white clover regions, the weather has acted similarly to the way it acted in the South and the bees have done very little up to June 15th in any of the northern sections with very few exercitions.

In many sections, now that the weather has turned warm, white clover is magnificent, but at the date of this writing, June 18, there has not been a great amount of white clover honey gathered yet by the bees.

white clover honey gathered yet by the bees.
Prospects are still magnificent, however, and bees in excellent shape and beekeepers are still optimistic, hoping

that the weather will continue hot and favorable with occasional rains. Their idea is that the clover crop is anywhere from ten days to two weeks late and that we are over-anxious when we anticipate any heavy starting of the crop before June 20.

This condition applies to practically all of the centralwestern territory. Northern sections seem to be more normal, and the same applies to New York and the New England states, all of which are getting themselves set for a moderate or large crop of white clover honey according to weather conditions.

Some sections of Minnesota and Wisconsin have been too dry, but outside of these territories conditions have if anything been too wet, although soil moisture conditions now seem to be ideal.

In the plains states, there has been a lot of sweet clover plowed in North Dakota and subsequent moving of bees to new territories. There will undoubtedly be sufficient clover in this section, however, for such bees as there are to gather it, provided the proper changes of location can be made.

of location can be made.

South Dakota reports unusually desirable prospects, and the plains states of Nebraska and Kansas are at least equal to last year, if not better

In the intermountain territory, prospects vary a great deal. Northern New Mexico looks good, Colorado fairly good and Idaho and Montana at least as good if not better than last year. Idaho reports sufficient water for irrigation purposes throughout the summer and anticipation of a nice crop.

All in all, if there is to be a bumper crop of honey this year, it must depend largely upon the white clover regions, which are usually able to dispose of their own honey, and the intermountain territory. It looks like California and the West coast would have very little exportable surplus and that the big buyers of honey would have to look to the intermountain territory for their supplies. Of course, the plains area along the Missouri River, which is now becoming a wonderful sweet clover region and includes western Iowa, eastern Nebraska, Kansas and western Minnesota, together with North and South Dakota, are not to be disregarded since carlot producers are now becoming the common thing in this section.

PRICES FOR EARLY HONEY

There being very little early honey, there is no criterion to go by in prices and very few buyers are out. The California orange men are having no difficulty in getting 10c to 11c for their honey and many of them are holding for 12c. A report or two is coming in of advanced offering on white sage honey at 10½c, f. o. b. shipping point.

The southern states, however, are in unison on being discouraged as to honey prices. Much honey has been held over from last year and prices are very low, and the demand light.

We have heard of amber honey being quoted as low as 5½c per pound f. o. b. shipping point, and the price ranges from there to 8c or 9c for best quality honey. One or two reports have come in of offers on the Apalachicola light crop at 9c per pound.

A report for the July issue of the American Bee Journal is very difficult to make because of the fact that we are about in the midst of the main honeyflows in most sections of the country, or have not yet approached them. It is doubly difficult this year because all of the southern flows have been disappointing, the California flow also, and the flows of the Central West and plains states have been delayed.

It is hoped for the August issue that we may have rather full reports of the honey crop.

At this date it does not seem that the honey crop the country over can be very abundant. In other words, appearances would lead us to believe that the crop will not be much in excess of 1928, and may be very much lighter if the Central West and eastern states fail with their clover flow.

Carlot export honey should most certainly be as scarce as 1928 and in good demand.

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As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEES AND QUEENS

GOLDEN ITALIAN QUEENS—Producing large, beautiful bees, solid yellow to tip. Queens, untested, \$1.25; select untested, \$1.50; select tested, \$3.00 each. Ask for circular for package bees.

Dr. White Bee Co., Sandia, Texas.

IF YOU want bees that are gentle to handle, good honey gatherers and beautiful to look at, my strain of golden Italians will please you. Prices—Untested, 90c; six, \$4.80; twelve to forty-nine, 70c each; fifty or more, 65c each. Tested, \$1.25 each. Health certificate, safe arrival and satisfaction Hazel V. Bonkemeyer, R. 2, Randleman, N. C.

CONNECTICUT QUEENS—Bred for production and guaranteed to please you. 3-banded Italians. 1 select untested, 80c; 6, \$4.50; 12, \$8.00; 50 to 100, 60c each. Export queens, \$1.00 each.

A. E. Crandall, Berlin, Conn.

SUNNYLAND BEES ALWAYS PLEASE. Inquiries solicited. Crenshaw County Apiaries, Rutledge, Ala.

FOR SALE—Italian bees and queens, 75c each, \$8.00 per dozen. One pound of bees with queen, \$2.10; two pounds with queen, \$3.90. All charges paid to your postoffice. Write for prices on larger orders. Graydon Bros., Route 4, Greenville, Ala.

THE FOUNDATION OF SUCCESSFUL BEEKEEPING — Beekeeping authorities agree that young queens of good quality are essential for better wintering and good honey crops.

Good queens and good beekeeping are inseparable.

There is nothing else like Cutts' queens. They are distinctive in quality and character.

They are your big help for better crops and bigger profits.

One untested, 80c; twelve for \$9.00. Tested, \$1.50 each. Description and complete price list, also prices on quantities, upon request. Safe arrival and satisfaction guaranteed. Health certificate with each shipment.

J. M. Cutts & Sons, R. 1, Montgomery, Ala.

GOLDEN ITALIAN queens of highest quality and most careful breeding. Producing large, hustling bees, very gentle and beautiful. Yellow to the tip. My queens are from a proven honey producing strain. Select untested, \$1.00 each; 6 to 12, 90c each; 12 or more, 80c each; 100 for \$70.00. Select tested, \$2.50 each. Safe arrival and satisfaction guaranteed. Try my goldens; they will please you. W. C. Wright, Holt, Mo.

CHOICE, bright Italian queens that are a pleasure to work with and you will be proud to own. Requeen with stock that has been bred and selected in the North the past 26 years for good wintering, hustlers, gentle and fine color. One queen. \$1.00. doses, \$10.00. Exceders, \$10.00. Emil W. Gutekunst, Colden, N. Y.

by a certificate of inspection from an authorized inspector.

QUEENS—Pure Italian, gentle and hardy strain, 50c each. Any number. Louisiana Southern Bee Farm, Baton Rouge, La.

SIMMONS ITALIAN QUEENS—One, 90c; six, \$4.75; twelve, \$9.00. Long distance orders by airmail. Fairmount Apiary, Livingston, N. Y.

I AM OFFERING my Golden Italian Queens for balance of 1929, untested, any number at 75c each. Tested, \$1.00 each. They are still the big, bright, hustling kind (the kind that get the honey). I guarantee them to be the best that money can buy or money back.

E. F. Day, Honoraville, Ala.

SERVICEABLE, money-worth Italian Queens. Select untested, 50c each in small quantities. Less for large amounts. Write for free circular. R. V. Stearns, Brady, Texas.

BRIGHT Italians—Bred for 15 years. Big husky queens, exceptionally prolific and long lived. Bees are hardy rustlers, gentle and beautiful. Let us send you free booklet before you buy. 80c each, \$9.00 dozen. Hailey's Apiaries, Hughes Spring, Texas.

GOLDEN Italian Queens—Bees very gentle and cap up honey white. State inspected. Satisfaction guaranteed. Select tested, \$2.25; tested, \$1.25; untested, 90c each; 6, \$4.80; 12 or more, 70c each. D. T. Gaster, R. No. 2, Randleman, N. C.

MY famous leather-colored Italian queenbees, June 10 and after, \$1.00, or six for \$5.00. J. W Romberger, 3113 Locust St., St. Joseph, Mo.

BRIGHT three-banded Italian queens—the kind that pleases everyone. One, 70c; 12 lots, 65c each; 50, 60c each; 100, 55c each. Health certificate. Safe arrival. Satisfaction guaranteed. Taylor Apiaries, Luverne, Ala.

GOLDEN Italian queens for sale. Only one grade, select. Safe arrival and satisfaction guaranteed. Untested: One, 75c; six, \$4.50; twelve, \$8.00. Satisfied customers for thirty years. Your order will be appreciated. E. A. Simmons Apairies, Greenville, Ala.

CAUCASIANS—Unequalled honey producers; do not swarm readily; very prolific and gentle. Northern bred queens now ready. Untested: 1 to 10, \$1.50; 11 to 25; \$1.35; 26 to 50, \$1.25; 51 up, \$1.15. C. A. Bird. Odebolt, Iowa.

FOR SALE—Some fine yellow Italian queens, untested, \$1.00 each. Ready to mail May 20. Satisfaction guaranteed. J. F. Michael, R. 1, Winchester, Ind.

"SHE-SUITS-ME" Italian queens. One 80c; six, \$4.00. Send for circular. See advertisement in January issue. Allen Latham, Norwichtown, Conn.

PETERMAN'S select Italian queens, also package bees. Queens: 1, \$1.00; 6, \$5.50; 12, \$10.00; 25, \$20.00; 50 or 100, 75c each. H. Peterman, Lathrop, Calif. Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

BRIGHT ITALIAN QUEENS—Ones that are guaranteed to please you or your money refunded. Untested, any number, 65c each. Tested, \$1.00 each. Honoraville Bee Co., Honoraville, Ala.

GOLDEN ITALIAN QUEENS, untested, 90c; 6, \$4.75; 12 for \$8.25. Tested, \$1.25; select tested, \$2.25. State inspected. Satisfaction guaranteed. Sam Hinshaw & Son, Randleman, N. C.

SMITH'S QUEENS—Backed by a money back guarantee at 50c each. The best queens for the lowest prices. N. B. Smith & Co., Calhoun, Ala.

REACROFT selected Italian queens: One 90c; ten \$8.50. Quantity prices on application. Satisfaction guaranteed. George H. Rea, Reynoldsville, Pa.

SAME OLD PACKAGE—Two pounds Italian bees, two combs (Hoffman frames), young Italian queen laying, to you. Same old price—six dollars per single package. Same old terms—one-fifth down to book order. May delivery, f. o. b. Same old Jes Dalton, St. Francisville, La.

LISTEN—If you desire to purchase high grade Italian bees and queens, write The Carolina Bee Co. for circular and price list. W. O. Curtis, Manager, Graham, N. C.

DIEMER QUEENS—Bright three-band Italians, before June 15, \$1.00 each; after June 15, 75 cents each. Mailed to you in my double-barrel introducing cage. Write for circular giving price of package bees. J. F. Diemer, Liberty, Mo.

GOLDEN Italian queens, untested, \$1.00 each; twelve, \$9.00; six, \$5.00. Breeders, \$5.00 to \$10.00. Tested, \$2.50 each. Thirty years' a golden breeder, and they stand second to none. J. B. Brockwell, Barnetts, Va.

ITALIAN BEES AND QUEENS—Two-pound package without queen, \$3.00. Untested queen, \$1.00; tested, \$1.50. Add price of queen wanted. Safe arrival after May 10. Birdie M. Hartle, 924 Pleasant Street, Reynoldsville, Pa.

QUEENS AND BEES—Italians, golden and Carniolans. Tested, \$1.00; untested, 75c each. Bees, \$1.00 per pound. Satisfaction guaranteed. C. B. Bankston, Box 65, Buffalo, Texas.

1.EATHER COLORED ITALIAN QUEENS— \$2.00; after June 1, \$1.00. Tested, \$2.00. A. W. Yates, 15 Chapman St. Hartford, Conn.

HIGHEST grade Italian queens - Tested, \$1.50; untested, 75 cents. Package bees, one pound, \$1.50; two pounds, \$2.50; three pounds, \$3.25. Have had no diseane. State inspection certificate with each shipment Safe delivery guaranteed. T. L. Davis, Buffalo, Leon Co., Texas.

THRIFTY Caucasian queens from daughters of imported mothers. After April 15: One, \$1.50; twelve, \$14.00. Safe arrival. Tillery Bros., Greenville, Ala., R. 6, U. S. A.

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FOR SALE—Two-family house, barn, garage and Ford car, in village of 4000, near new high school. 150 colonies of Italian bees, in good clover section, with supplies for both comb and extracted honey and 90 acres of good land. F. L. Barber, Lowville, N. Y.

FOR SALE—One Root Buckeye 8-frame extractor and one 3-horse International gas engine, both good as new, at a reasonable price.

Leo J. Allemeier,
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R. No. 3, Delphos, Ohio.

FOR SALE—Five hundred colonies of Italian bees and equipment with four permanent locations consisting of outlying suburban town building lots planted to fruit trees and otherwise especially adapted to beekeeping. The home place of four acres, like all the other locations, is on a wonderful system of state roads and is an almost perfect home for a beekeeper. Three other yards are in large commercial orchards. Here is a splendid opportunity for someone to get in the center of a truly wonderful white, alsike, sweet clover and tulip region. Unlimited opportunity for expansion. My reason for selling is that I have purchased a home in an adjoining county. There is no disease in this part of the state. Will guarantee bees free of disease. This is near Washington, a good honey market. Can dispose of entire crops at roadside stands. Priced to sell. Write for full information. Rockward Nusbaum, Uniontown, Carroll County, Maryland.

FOR SALE—Because of death of owner, about sixty colonies of bees in 8-frame Langstroth hives; comb honey equipment. Honey house with location. Best offer takes outfit. C. L. Hammer, Atlantic, Iowa.

HONEY AND BEESWAX

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, Birmingham, Mich.

FOR SALE—Clover honey in 50-gal. drums.

W. Duckwall, Jacksonville, Ill.

FOR SALE—Comb and extracted honey. H. G. Quirin, Bellevue, Ohio.

COMB WANTED—White clover, also buck-wheat, in glass front cases, must be cello-phane wrapped. Quote lowest prices various phane wrapped.
grades when ready.
Arthur H. Hoffman, Inc.,
Richmond Hill, N. Y.

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HONEY WANTED—Small or large lots, white or extra light amber grades, in 60-lb. cans. Send samples, state quantity and lowest N. Y. delivered prices. Also can use white comb if state section size, and style packing cases, with delivered price.

Arthur H. Hoffman, Inc.,
Richmond Hill, N. Y.

HONEY WANTED—Extracted Clover and Buckwheat. State quantity and how packed and mail sample Hoffman & Hauck Division, 646 Dean St., Brooklyn, N. Y.

WANTED-Light honey. Mail sample and price. Cottrell Craig Pl., Lombard, Ill.

FOR SALE—White and alsike clover extracted honey; 1929 crop. Prices and sample on request. Rockward Nusbaum, Box 294, Frederick, Md.

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"CLOVER HONEY—Comb and extracted. Dr. E. Kohn & Sons, Grover Hill, Ohio."

HONEY FOR SALE—Any kind, any quantity.

The John G. Paton Co.,
217 Broadway, New York.

HONEY FOR EVERY PURPOSE—We have it in any amount; light amber and white clover, basswood, sweet clover, buckwheat. Write us what you need and ask for prices. A. l. Root Company of Chicago, 224-230 West Huron Street, Chicago, Illinois.

STURDEVANT'S CLOVER HONEY — St. Paul, Neb. Any quantity.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colo-rado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE — White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices.
Dadant & Sons, Hamilton, Illinois.

SHALLOW frame white comb honey and white extracted honey.

The Colorado Honey Prod. Ass'n, Denver, Colo.

FOR SALE-Northern white, extracted and comb honey.
M. W. Cousineau, Moorhead, Minn.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request. Dadant & Sons, Hamilton, Illinois.

SUPPLIES

FOR SALE—Foundation, bee brushes, comb honey cartons, feeders, nailed and painted bodies, bottoms, covers, and bodies, veils, sections, a big assortment of frames, excluders, comb and extracting supers k. d., and many other items in good, usable condition. Reason for selling, items no longer listed in our catalog. Prices the lowest anywhere for the value. You can address G. R. Lewis Company, at Watertown, Wis., Albany, N. Y., Lynchburg, Va., Texarkana, Ark., or Sioux City, Iowa.

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets, 25c. Postage 3c per 1,000.

Superior Honey Co., Ogden, Utah.

FOR SALE—High quality queen mailing cages; also Root's bee supplies. Write for prices. Hamilton Bee Supply Co., Almont, Mich.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly.

The Colorado Honey Producers' Ass'n,
Denver, Colo.

Denver, Colo.

ROBINSON'S comb foundation will please the bees, and the price will please the beekeeper. Wax worked at lowest rates. E. S. Robinson, Mayville, Chau. Co., N. Y.

"BEEWARE" and Dadant's Wired Founda-tion for the Northwest. Catalog prices. F. O. B. Fromberg, Montana. Beeswax wanted. Write for prices. B. F. Smith, Jr., Fromberg, Mont.

MISCELLANEOUS

DOGS—POLICE PUPPIES. Entitled to registration. Fine watch dogs, natural heelers. Price, Ten and Fifteen dollars. Shipped collect.

Geo. A. Hummer, Prairie Point, Miss.

BEES during swarming season can be con-trolled so to return to hives. Particulars free on receipt of two cents postage. Don't fail. The Lenox Misty Sprayer Mfg. Co., 3-5 E. 14th St., New York City, N. Y.

FOR RENT-6 acres land, 5-room house fine location for package bees and poultry. Particulars.
Richard Knorr, San Mateo, Fla.

MAKE queen introduction sure. One Sat cage by mail, 25c; 5 for \$1.00. Allen Latham, Norwichtown, Conn.

GEORGE S. DEMUTH is editor-in-chief of Gleanings in Bee Culture. Its field editor is E. R. Root. This means a most carefully edited, able bee journal. Subscription price, two years for \$1.00. Write for sample copy. Gleanings in Bee Culture, Medina, Ohio.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.

Dadant & Sons, Hamilton, Illinois.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list. American Bee Journal, Hamilton, Ill.

THE DADANT SYSTEM IN ITALIAN—
The "Dadant System of Beekeeping" is now published in Italian, 'Il Systems d'Apicoltura Dadant." Send orders to the American Bee Journal, Price \$1.00.

RABBITS

RABBITS—Chinchillas, standard and heavy weight; black silver fox rabbits. Pedigree stock, eligible to register. Write your wants. H. G. Lieske, Fairwater, Wis.

Sunflowers for Shade

Shade is purely a local problem. Of course, all beekeeping problems are local, and one's ability to apply general principles to his own case is the measure of his success. So in this locality, Newport, Indiana, 40 degrees north, I would rather have no shade than too much. All we need is something to break the rays of the sun in the middle of the

Most of my bees are in more or less regular rows facing east, giving them the first rays of the morning sun and permitting a shady place for them to hang out on a hot evening when the hive is full of green nectar. In the spring I plant giant sunflowers at the east corner of each hive and a row the full length of the apiary along the south side, making it a point to put out plenty of seed to insure a good stand, and thin if necessary.

They reach their maximum growth during the hottest part of the year, furnishing no shade in the early summer, when none is needed. They make the best shade I have ever used; always the right amount at the right time. Some of them get to be young trees, if the ground is very fertile. Weeds and grass are kept down with a few chickens, which are very fond of drones, but never catch a worker unless it is crippled.

L R. Stewart, Indiana.

Cobblestones

Take a piece of German honey cake. Add some finely ground citron and almonds. Roll out one-fourth inch thick and cut out with a small cutter about one-half inch wide and one and one-half inches long. Bake on slightly greased tins and, when cool, cover with frosting. The frosting may either be colored vanilla, strawberry or chocolate.

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Alpatov's Study of Bee Anatomy

Prof. W. W. Alpatov, a Russian microscopist, who has studied and experimented on bees, in the United States, for several years, and is now at the Johns Hopkins University, has sent us three of his biological reports on the variations in races of honeybees.

His experiments and microscopic studies bear upon some very important matters in the natural history of the sizes and shapes of the wings, the the honeybee: the length of tongues, number of hooks on the wings serving to join the two wings in flight, the measurements of the different joints of the legs, of the wax producing organs, the shape and size of the tergums or rings of the abdomen, etc.

Mr. Alpatov has examined microscopically several thousand bees, workers, queens and drones, and his descriptions are exceedingly interesting. One wonders how there may be such variety of structure among bees until one reflects that in all animated life there are differences of structure and of size. When we reflect upon the different sizes of human beings, even among people of

the same race and even of the same family, we cannot wonder at differences in even so small a being as a honeybee-

The studies of Mr. Alpatov and his descriptions indicate that, as a rule, the bees of southern countries are provided with longer tongues than those of northern climates. This is most apparent in Russia, for the bees of the Caucasus, as a rule, and of Italy have longer tongues, stronger wings, than those of northern Russia.

In countries like ours, where there is a constant shifting of bees from one part to another, such differences cannot be regularly found. But since the Italian bees have also longer tongues, on the average, than the common black bees and since the Italian bees are now pretty generally scattered over the United States, we find that our bees occupy a very prominent place among the better bees of the world.

In the Caucasus, strange to say, the bees vary according to the locations they occupy among the different ranges of mountains. And yet, we should not wonder at this: do not races of men differ fundamentally where they are separated only by some ranges of mountains, or by a sea like the Mediterranean?

Mr. Alpatov gives not only the detail of his own studies but also statements taken from numerous other microscopists in the same line, many of them Russian. Since the Russian Revolution and the lamentable attempt to build a political communistic state in the country of the "moujik," many of our Americans are prone to consider the Russians as far behind the times. It is exactly the other way. They are trying to go faster than human civilization can go. But there are fully as many scientific students in Russia as in any other progressive country. We cannot deny their great ability.

Why One Subscriber Sold His Bees

Some two years ago my wife gave me the choice of disposing of my pair of Irish setters puppies or the bees, and I chose to dispose of the bees.

Her ultimatum was occasioned by the puppies picking up about a quart of bees one wash day, bolting into the basement where the laundress in negligee was at work, running between her knees to scratch off bees, then went on up the stairs and met the housemaid at the head of the stairs. She occupying most of the doorway, they had to go between her feet, and on up the stairs to the bedroom, where in trouble they always went to Mrs. Piatt. They met her and dislodged the balance of the bees.

Meals at our house were served from the mantel, sideboard and the pantry shelves for several days, and as I still have the Irish setters, with a couple of additions, I am no longer interested in bees as a diversion.

Missouri.

As It Should Be

The Merchants' Biscuit Company of Denver, Colorado, manufacture the "Supreme" graham crackers, and on the container is printed, "Honey Flavored." If more emphasis was placed on the many delectables that are sweetened with honey, we would get better sales of the inimitable product.

J. D.

Barnard Boosts Bread

The advertising of the "Holsum Bread," made from natural unbleached flour, contains a picture of Doctor Barnard, president of the American Honey Institute, with a testimonial from the doctor in which he compares the natural flavor of the new bread with the natural tang of honey.

MUTH'S PRICES SAVE \$

Here are some of our prices from our 1929 catalog

GUARANTEED HIGHEST QUALITY

5 lb. boxes Medium Brood69c p	er lb.
5 lb. boxes "Hercules" Non-Sag70c p	er lb.
5 lb. boxes Thin Surplus Fdn 72c p	er lb.
5 10 fr. 1 story Metal Cover Hives	\$13.60
5 10 fr. 1 story Wood Cover Hives	10.95
500 No. 1 41/4x17/8 Sections	5.60
1 2 fr. No. 15 Rev. Honey Extractor	22.90
Send us a list of your requirements.	

OUR CATALOG IS YOURS FOR THE ASKING

THE FRED W. MUTH CO.

CINCINNATI, OHIO

Morrison's Three Banded Italian Queens

If you want Italian queens with years of selection and breeding back of them for qualities such as gentleness, honey gathering, less inclined to swarm, and capping their honey white, requeen with Morrison's Line Bred Stock. We have the stock and know the business.

Prices are as follows: 1 (one) \$1.00; 6 (six) \$5.50; 12 (twelve) \$10.00; 25 or more, 75c each. Tested, \$1.50 each, in any number. Breeders, \$5.00 each.

Safe arrival and perfect satisfaction guaranteed

GEO. MORRISON, P. O. Box 65, Mandale, Ohio

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Bees for the Orchard

Orchardists are taking it for granted now that they must have bees in the orchard at the time of fruit bloom. In view of this, Prof. R. H. Kelty, of Lansing, Michigan, wrote a bulletin, No. 56, on renting or keeping bees for use in the orchard. He figures that an orchardist can make it profitable to buy ten 3-pound packages, hives, supers, sections, foundation, etc., and keep them not only for fertilizing the fruit blossoms, but also for honey. He figures the cost of ten colonies for comb honey with supplies at a total of \$195.45 and of ten colonies for extracted honey at \$243.

His bulletin includes instructions on how to manage these bees after the receipt of the pound packages. He figures that colonies may be used advantageously at the rate of one colony to the acre, for early pollination, when the weather may prevent the bees from flying very far.

We are quite inclined to believe that it is worth while to locate bees at close intervals in the orchard, in order to secure full pollination. At any rate the booklet is worth reading and there is no doubt that pollination of fruit may be much more successful than ordinarily if a sufficient number of colonies are placed in large orchards. We have experienced this ourselves to our satisfaction.

Professor Kelty also gives instructions on renting colonies of bees for temporary use for pollination purposes. But we believe this is much less likely to be profitable than the placing of pound packages in the orchard in the time of fruit bloom.

New Scientific Paper

Several important scientific papers have recently been issued from the pen of W. W. Alpatov, research fellow of the International Education Board at the Institute for Biological Research of the Johns Hopkins University. One "On the Improvement of Bee Races" is reprinted from the 1928 annual report of the Maryland State Beekeepers' Association. Another, entitled "Variation of the Hooks on the Hind Wing of the Honeybee," is reprinted from the Biological Bulletin, September, 1928. The third and most important is "Biometrical Studies on Variation and Races of the Honeybee," reprinted from Quarterly Review of Biology, March, 1929. Mr. Alpatov is doing some very

Mr. Alpatov is doing some very good work in a field long overlooked by the scientist.

North Dakota and Her Bees

Governor George F. Shafer of North Dakota, writing in the Denver Post, narrating the many industries

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of the state of North Dakota, mentions the bee industry as follows:

"We are one of the leading bee states, both in quality and quantity of production. In 1920 the state had 708 hives of bees; in 1928 there were 30,000 hives, with a production of 3,300,000 pounds. Why this rapid development in production and quality? The answer, acres and acres of sweet clover, the long, warm, sunshiny days, and the short, cool nights. The long days, giving longer hours for work, and the short, cool nights precipitating in largest quantity the nectar in the clover blossoms."

J. B. D.

Sheboygan County Beekeepers Meet at Plymouth

The Sheboygan County (Wis.) keepers' Association recently held a meeting at Plymouth, Wis. Mr. L. T. Bishop of Sheboygan president, in the absence of President Chris J. Schmahl of Elkhart Lake. A field meet was planned at the Birkholz place at Silver Creek on June 23.

Honey Tooth Paste

Eight ounces precipitated chalk, four ounces powdered castile soap, four ounces orris root powder, two ounces essence of wintergreen, and enough honey to make a paste.

George O. Dudley, Jr., Massachusetts.

KNIGHT'S QUEENS

LINE-BRED, THREE BANDED LEATHER COLORED ITALIANS

The best honey gatherers, gentle, prolific and hardy

I have one hundred or more letters already received this spring, stating their colonies headed with my queens withstood the past severe winter in perfect condition while others did not survive. My queens are carefully reared and selected, and are really worth more than the average queens advertised. I guarantee satisfaction.

PRICES:

Can still make immediate shipments on package bees. Two-pound pkg. with queen \$3.50 f. o. b. your address. Three-pound size with queen \$1.00 additional.

All queens sent in large, six-hole cages unless smaller size specified. No charge for clipping. No disease. Health certificate. Pure mating, safe arrival and satisfaction guaranteed.

JASPER KNIGHT

HAYNEVILLE, ALABAMA

Thrifty Queens

50c EACH

IN LOTS OF FIVE OR MORE SMALLER LOTS, 60c EACH

Safe arrival is guaranteed in the U S., Canada and Cuba. Pure mating and perfect satisfaction is guaranteed the world over.

Over a third of a century of careful breeding and selecting insures you of THRIFTY three-banded Italian queens that please. An output of thousands of queens per month assures you of good delivery.

Let THRIFTY queens help you build stronger colonies. Place your order today.

W. J. FOREHAND & SONS

FORT DEPOSIT, ALA.

GUARANTEED TO PLEASE

TIN CANS AND PAILS - Best Quality on the Market - July 1st, 1929

In Strong Dust-Proof Cartons-Pails with Sure-On Bails

		Shipment	from Grand Rapids		Shipment from Ch		Chicago
21/2	pound cans	Per 100	Per 500	Per 1000	Per 100	Per 500	Per 1000
	100 in carton	\$3.75	\$17.75	\$34.00	\$3.25	\$15.75	\$30.80
	pound pails 50 in carton	\$6.50	\$31.35	\$60.00	\$5.75	\$27.50	\$53.75
10	pound pails 50 in carton	\$9.50	\$46.00	\$88.25	\$8.00	\$39.25	\$76.75
		From	Grand Ra	pids	From	Chicago or	Detroit
21/2	pound cans		One box	Ten boxes	Ten boxes	50 boxes	100 boxes
	24 in wood bo	x	\$1.15	\$10.00	\$9.50	\$45.00	
5	pound pails 12 in wood bo	x	\$1.10	\$10.50	\$9.00	\$44.00	
10	pound pails 6 in wood bo	x	\$. 90	\$ 8.00	\$7.00	\$32.50	
60	pound cans 2 in wood bo	x	\$1.10	\$10.00	\$9.00	\$43.50	\$85.00
50 bulk crate		Per crat	e \$17.50	Per craf	e \$15.00		

A. G. WOODMAN CO., Grand Rapids, Mich.



ROBINSON

A SELECT QUEENBEE FREE

With New Subscription to the American Bee Journal—or with a Renewal of Old—One Select Queenbee with each year of subscription.

——1 Year \$1.00—3 Years \$2.50—

We have chosen the best queens we can get for this offer—Good only for summer of 1929.

Send in Subscription early to get queens during the honeyflows.

AMERICAN BEE JOURNAL, Hamilton, Illinois

Beekeepers Take Notice

For thirty years we have specialized in the manufacture of **Sections** from the whitest selected

Wisconsin basswood

We also manufacture hives, supers, frames and shipping cases

Write for our free illustrated catalog

Marshfield Manufacturing Company
Marshfield, Wisconsin

MACK'S QUEENS (3 Band Italians)

Have won favor and fancy in practically every honey producing section in the U. S. A. They are so popular because they are so HARDY, GENTLE and PROLIFIC. NORTHERN BRED is the reason. They are so good that we guarantee them to please any beekeeper this side of Mars. That's a lot of territory but try to produce the same quality yourself for less than \$1.00 each. Yet here they go at

\$.60c each; \$6.60 a doz.; \$50.00 a 100

If they don't please you, return them and we will refund your money and pay you for your time and trouble besides.

HERMAN McCONNELL

(The Bee and Honey Man) ROUTE 2

Telegraph and telephone Oblong, Illinois

ILLINOIS

The Pathogenic Character of Fungi in Bee Colonies

By Hermann Fielitz

(Condensed from Centralblatt fur Bakteriologie, Parasitenkunde und Infektions-krankheiten. 66. Band. 1925. Nr. 1/7.)

The author points out that beehives, due to their relatively high temperature and moisture content, afford an excellent breeding place for both plant and animal parasites. The plant parasites, consisting mostly of fungi, have not been very thoroughly investigated with respect to their pathogenic character. However, two in particular, namely Pericystis apis and Aspergillus flavus, are known to be definitely harmful, whereas, among other, Aspergillus glaucus, Penicillium crustaceum, Mucor erectus and Oospora favorum are known to be harmless.

A previous investigator found a few dead bees which had been entirely mummified by a fungous growth, in honeycombs infected with various fungi. The author sought to determine if these bees had been killed by the fungous growth or whether they became infected after death. The fungi in question were Penicillium glaucum, Trichoderma lignorum and Mucor mucedo.

A section of honeycomb, which was overgrown with a healthy colony of a pure culture of the fungous whose pathogenic character was to be determined, was inserted in the hive of a normal colony of bees. Observations were made over a period of time to determine the time necessary for the nees to completely remove the fungous growth. The presence of any unusual increase in the number of dead bees was noticed as well as any marked decrease in the vigor of the colony as a whole. Care was taken in every case to be sure that the colony was subjected to perfectly natural conditions throughout the experiment except for the presence of the fungous. In every case the experiment was carried through in two parts. First, a comparatively young growth of the fungous was placed in the hive and results were noted; later another section of honeycomb was inserted which contained a much more mature growth of the same fungous. In most cases two experiments were made with the same fungous, one using a vigorous, healthy colony of bees and one in which a weaker colony was used.

In all cases in which Penicillium glaucum was used there were no harmful effects. In the cases of Trichoderma lignorum and Mucor mucedo there were a very few bees which died and which had been at-

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tacked by the fungous, but in no case did the infection assume epidemic proportions. The author further concluded that there is no essential difference between the effect of a fungous at two different stages of development. Where the colony had been weakened by the presence of some other disease, its resistance to parasitic infection was materially M. C. Dennison.

Aged Beekeeper Plans to Retire

Possibly the oldest active beekeeper in Indiana is Henry Hein, of Stewartsville, who has reached the age of 81 and is planning to retire. Incidentally, Mr. Hein and his brother, Jasepr, are the oldest living twins, it is said, in their state.

In his earlier life, Mr. Hein was butcher. Then he obtained a few hives of bees as a recreation. Eventually he made honey production one of the main lines of his revenue, and has never reached the point where the wonderful work of bees fails to thrill him. He says he dislikes to think of getting rid of his bees, but even the seventy-five colonies are too much for him at his age and in his present condition of health.

The aged beekeeper is known far and wide and his sunny disposition makes him a popular resident of his community. His wife died about twenty-seven years ago, and Miss Elizabeth Hein, a daughter, looks after his care and comfort in his declining years.

"Some of my happiest hours have been spent among my bees," says "They made me some Mr. Hein. money and a lot of happiness. More people ought to keep bees, as they deserve to be kept."

Not far from the village of Stewartsville is the old house where Mr. Hein and his twin brother, Jasper, were born on May 29, 1847. It is one of the oldest homes in the county. David I. Day, Indiana.

Here's One

Under the caption "Try Honey," a small newspaper filler, nobody's advertisement, reads: "Try honey instead of sugar to sweeten the rhubarb for a change. It is good—and different."

All true, and a little more of these "epigrams" will bring about better

Another Honey Tooth Paste

One ounce myrrh in fine powder, a little green sage, two spoons white honey.

Two scruples myrrh in fine powder, eighteen scruples juniper gum, ten grains rock alum. Mix in honey. W. F. Haag, Kansas.

TIME and MONEY Mean a Lot

To Beekeepers in Minnesota and Surrounding States

In the rush of the season you can get all of your supplies close to home. have Lewis and Dadant goods on hand at all times and at prices no higher than you would pay at the factory. Whether you come over in your car or mail in your order, you save both time and money. And this means a lot.



We like rush orders, as we buy in car lots and ship same day order is received.

nroughout the land. We have everything you need to help you make the most from your bees this year — every year.

Dadant's Wired Foundation and Lewis Slotted Bottombar Frames on hand at all times.



STANDARD LUMBER COMPANY

Winona - Graceville - Brainerd MINNESOTA



* Six Queens Free!

Six select untested queens absolutely free with each order of 25 or more of

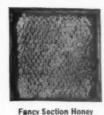
FOREHAND'S THREE-BANDED ITALIANS

The very best at the lowest possible price for the remainder of the season.

1-12 select, untesfed queens, 55c each; 12-25, 50c each

Safe delivery and perfect satisfaction guaranteed in U. S. and Canada.

N. FOREHAND, Gonzalez, Florida



Dadant's Surplus Foundation

A STANDARD OF PERFECTION

This foundation gives each section a delicate center that blends per-fectly with every bite. Remem-ber, well pleased customers are the comb honey producer's biggest asset.



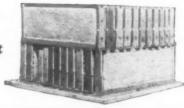
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DADANT & SONS, Hamilton, Illinois

Sold by all

Lewis - Dadant

Dealers



For chunk honey Slices easily

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Headquarters For Extractors In Michigan

M. H. HUNT & SON

Lansing, Michigan

Read Root's advertisement on back cover in regard to the complete line of extractors that they manufacture. Everything from a 2-frame

The 4-frame Novice Extractor at only \$18.50

Send Your Extractor Order Now

PURE ITALIAN QUEENS AS GOOD AS THE BEST-1 to 10, 60c each; more than 10, 50c each

Every queen guaranteed in every way. You to be the JUDGE

ROY S. WEAVER & BRO., Courtney, Texas Charter member No. 7, Texas Association of Queen Breeders and Bee Dealers

ONE WANTS YOUR HIVES ---

If They Are Branded

Branded equipment is too "hot" to be stolen. Every part of a beehive that is made of wood can be branded with your name-for identification.

Branding, besides serving to identify your equipment, will advertise your product, as frames, sections, and shipping cases can be branded with your name or

The branding iron is detachable from the torch, and other tools can be substituted-such as soldering coppers for repairing tanks, or the flame itself can be used to scorch out boxes where there has been disease.

The shape and design of this gasoline torch brand makes it convenient to

handle and the branding is continuous, as the iron is always red hot.

Its various uses commend it as an ideal tool for the beekeeper.



700 SOUTH TENTH AVENUE

MAYWOOD, ILLINOIS

BEE SUPPLIES

When you buy RUSCH supplies you get QUALITY, SERVICE and REASONABLE PRICES.

Send us your orders and satisfy yourself that you have found the right place to buy bee supplies. Write for free catalog.

A. H. RUSCH & SON CO.

REEDSVILLE, WISCONSIN

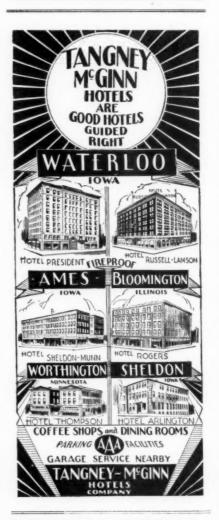
OUEENS 50 CENTS

I want your business and I don't know of any better way of getting it than selling you these queens at this price.

They are raised by myself and I guarantee them to be the equal of any queens at any price.

A. E. SHAW

SHANNON, MISS.



RED STICK

PACKAGE BEES AND NUCLEI

FOR JUNE AND JULY

to 100 2-lb. packages, \$2.25 each to 100 3-lb. packages, 2.90 each to 100 2-frame nuclei, 2.50 each Pure Italian queens, 75c each

Liberal overweight, safe arrival, pure Italian queens, health certificate and absolute satisfaction included in above prices.

RED STICK APIARIES

BATON ROUGE, LA.